

Manufacturers Record

Industry Construction



\$6.50 per Year.
Single Copy, 20 Cents.

Baltimore, Md.
NOVEMBER 27, 1930



A Superpower Era

Natural gas piped from Southern gas fields at a cost of \$250,000,000 features the South's 1930 power development. This fuel now made more widely available is added to the great power resources of coal, lignite, oil, and the 3,900,000 horsepower developed by waterpower plants in the Southern States.

Continued expansion of hydro and steam electric systems is under way in the South. Great interconnected lines have made possible continuous power service, supplying cities, towns and the rural districts.

So far this year Southern public utility power plants are nearing the record output of 1929, when 21,584,000,000 kilowatt-hours of electricity were produced, —an increase of 2,000,000,000 kilowatt-hours over the output of 1928.

More than 8,500,000 total horsepower is required for Southern manufacturing and mining operations. This power is generated by steam plants using coal, lignite, oil and gas; waterwheels and motors; internal combustion engines; and much is supplied through electric motors using purchased current from public utilities or from private plants. In 1910, the primary installed power capacity for Southern manufacturing had reached 4,029,000 horsepower and in 1927 it had jumped to 7,656,000 horsepower. This was a gain of 3,535,000 horsepower in 17 years and 1,610,000 horsepower more than was installed in all the manufacturing plants of the United States in 1890.

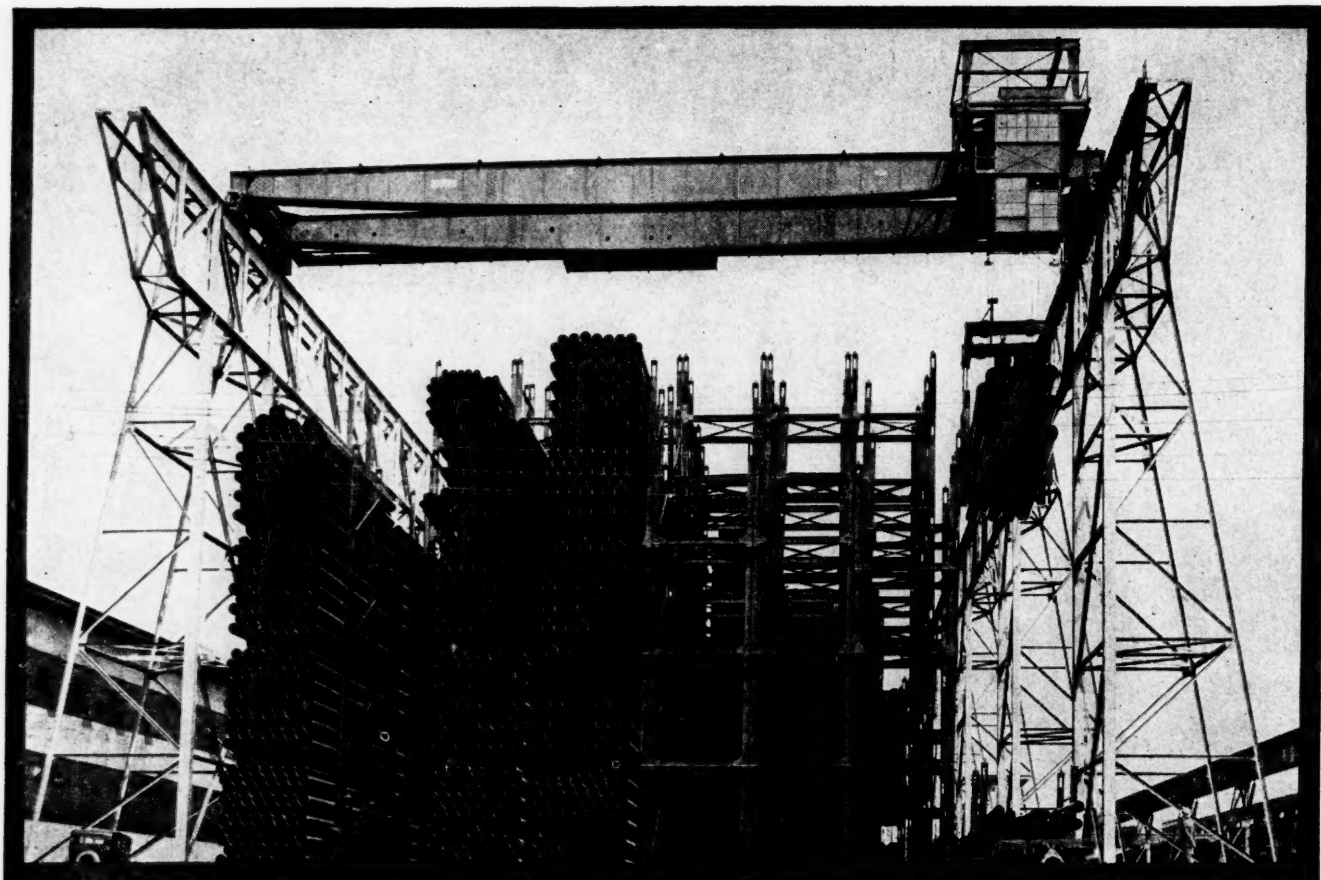
The potential developed waterpower of the South is approximately 9,000,000 horsepower; its 100,000 square miles of coal lands are estimated to contain more than 571,515,000,000 tons of coal; it has more than 5,000,000,000 barrels of petroleum resources, or 55 per cent of the country's estimated reserves, and untold quantities of natural gas for heating and power purposes. More than 1,050,000,000 cubic feet of natural gas are produced annually in the South.

This issue is largely devoted to the power resources of the South. Details are given of recent developments which assure power for every purpose.

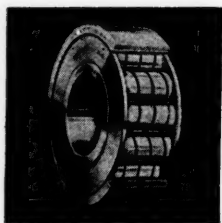
No delays with Hyattized P & H Cranes

The extreme hardships of crane operation indoors or out, demand bearings that can stand the gaff of heavy loads and long use without failure.

The shocks of severe service are easily absorbed by sturdy Hyatt bearings. Jolts and jars never pass to weaken equipment. On the contrary, Hyatts invariably prolong crane life and guard against breakdowns and consequent loss of time.



P & H Electric Traveling Cranes, built by the Harnischfeger Corp., Milwaukee, Wis., are Hyatt equipped for complete satisfaction.



Loads get under way quickly and with less consumption of power on free-running, frictionless Hyatts. Wear, replacement and repairs are avoided—maintenance is reduced to infrequent lubrications.

For uninterrupted operation, for speedy and accurate load spotting, for bearing performance that will be permanently free from attention, the protection of Hyatt Roller Bearings should be included.

HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

for every excavating and material handling job

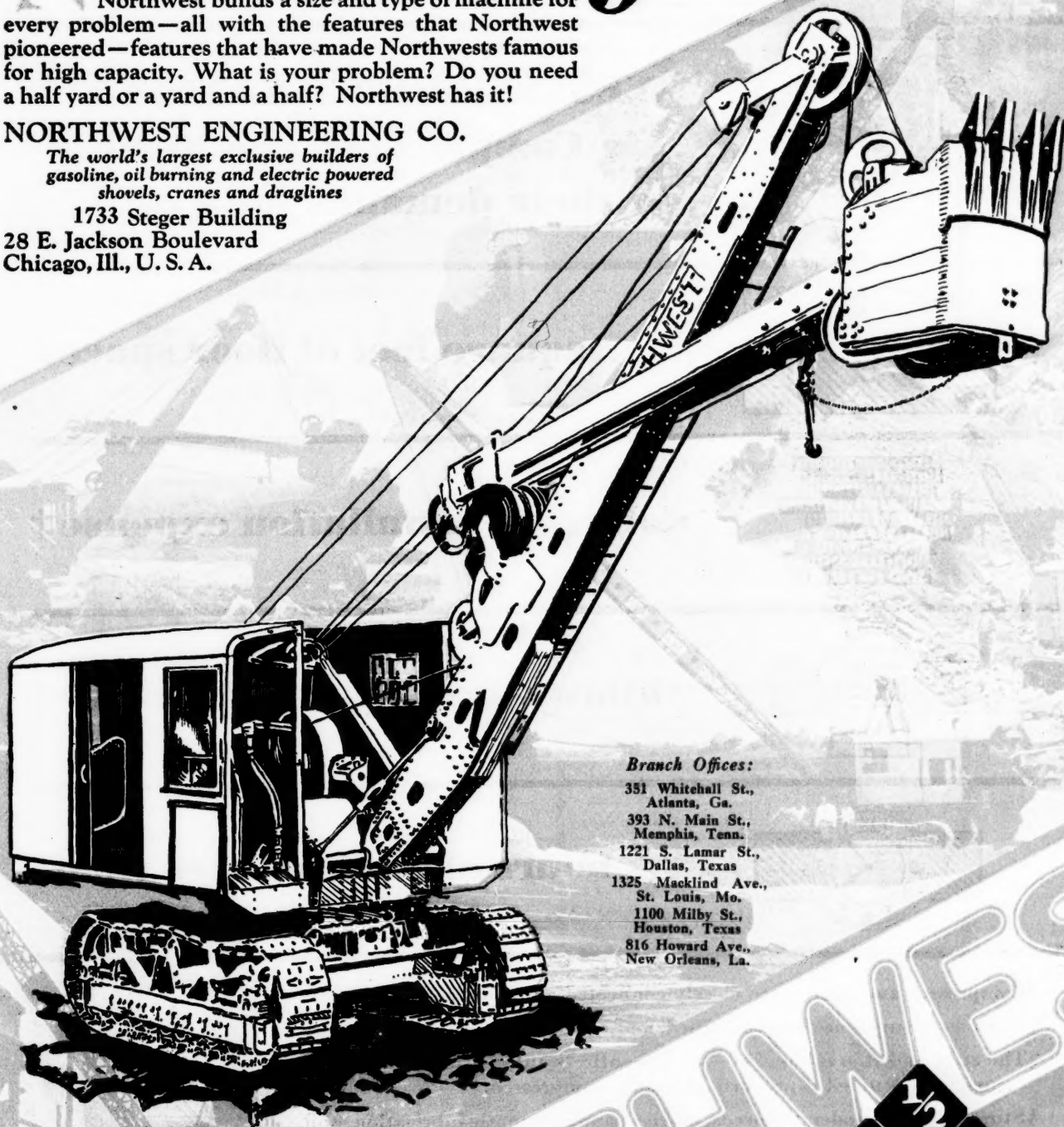
NOW you can have Northwest money-making, yardage-producing features on your job!

Northwest builds a size and type of machine for every problem—all with the features that Northwest pioneered—features that have made Northwest famous for high capacity. What is your problem? Do you need a half yard or a yard and a half? Northwest has it!

NORTHWEST ENGINEERING CO.

*The world's largest exclusive builders of
gasoline, oil burning and electric powered
shovels, cranes and draglines*

1733 Steger Building
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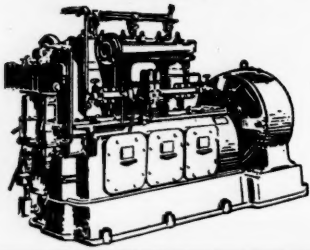


*The
best buy
on the market today!*

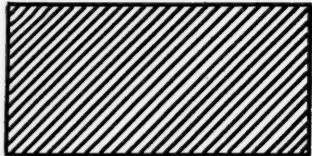
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NORTHWEST

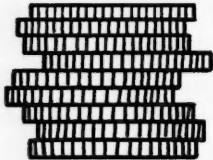
MODEST COMPRESSORS



WESTINGHOUSE-NATIONAL
Air Compressors are Modest
in their demands for . . .



square feet of floor space*



dollars of installation expense †



kilowatts of operating power ‡



hours of maintenance time §

*Compressor and motor are closely connected and compactly arranged.

†Compressor units are self-contained, and need no elaborate foundations.

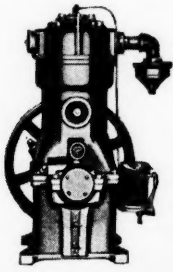
‡The start and stop method of control—entirely automatic—assures that current consumed is proportional to air compressed.

§Sturdy design, moderate speeds, efficient and automatic lubrication, and the distinctive automatic control, assure long trouble-free life.



WESTINGHOUSE TRACTION BRAKE Co.

**INDUSTRIAL DEPARTMENT
PITTSBURGH, PENNA.**

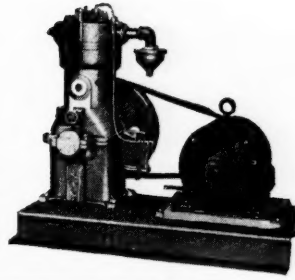


Model W

Water cooled. Four sizes, from 4 x 3½ to 5¼ x 5 Duplex. Displacements, from 15 cu. ft. to 128 cu. ft., depending upon size of compressor and horse power of motor. Maximum pressure, 150 lbs. Illustration shows automatic unloader for maintaining uniform pressure under continuous operating conditions.

Model WD

Single stage, water cooled, quiet, with multiple V-Belt drive. May be had with automatic pressure control or automatic unloader for either intermittent or continuous operation. Displacements from 15 cu. ft. to 128 cu. ft.



Compressed Air Flexible—Economical

Manufacturers are rapidly discovering that compressed air is more suitable for many operations, than any other power.

Its flexibility and the ease with which pneumatic tools may be handled, are remarkable. It's versatile, too, doing almost anything, from operating a pneumatic lift to blowing dust or lint from machinery.

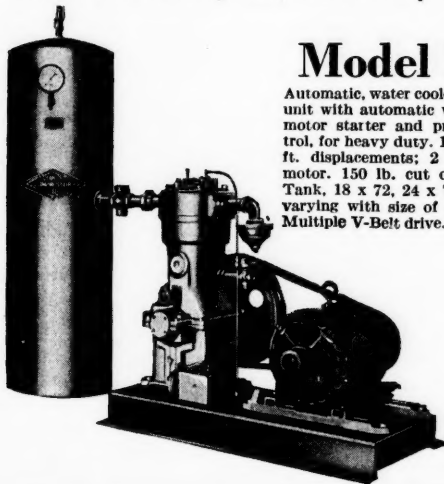
While flexibility and versatility are in-

herent properties of compressed air, you must look to Quincy Compressors for the utmost in economy, for the entire Quincy Line is designed and built with economy as the goal—economy in power requirements, in maintenance, in replacements.

Quincy Compressors are backed by a warrant of complete satisfaction without a time limit.

14 sizes—water cooled and air cooled.

Write for complete information, or use the coupon below.



Model WC

Automatic, water cooled, complete unit with automatic water valve, motor starter and pressure control, for heavy duty. 15 to 128 cu. ft. displacements; 2 to 25 h.p. motor. 150 lb. cut off pressure. Tank, 18 x 72, 24 x 72, 30 x 72, varying with size of compressor. Multiple V-Belt drive.

Quincy Compressor Co.,
216 Maine Street, Quincy, Ill.
Please send complete story of Quincy Compressors as applied to my individual business.

Now use compressed air for.....

Could use compressed air for.....

Firm Name.....

Line of Business.....

Address.....

City..... State.....

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Also in other important centers

QUINCY
Compressors
216 MAINE ST.
Quincy, Illinois
N1078R1

AIR TESTS FOR LEAKAGE • HYDROSTATIC TESTS FOR RUPTURE...

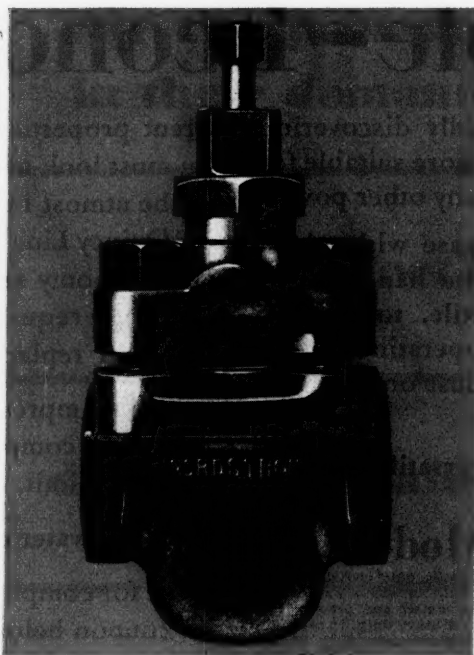
... And the hydrostatic Test is *double* the cold working pressure

Every Nordstrom Valve is given air tests for leakage and a hydrostatic test for rupture.

There are two air tests—the first at 75 pounds air pressure with valve bodies submerged under water. This detects any porosity of the body castings before complete machining takes place. The second air test is made with air at 150 to 250 pounds pressure, depending on valve rating, and is applied to valves completely submerged under water. This test indicates any leakage when the valve is assembled.

The hydrostatic test proves valve resistance to rupture primarily, and in every case this test is **double** the **cold working pressure**. This test ranges up to 6,000 pounds pressure.

These rigid tests, combined with the patented "Sealdport" method of lubrication adopted for Nordstrom Valves, assures the most efficient valve service under all conditions.



Nordstrom Valve with "Sealdport" lubrication.
Resists leaks and sticking. A distinct advance in the art of making lubricated valves.

In the Nordstrom method of "Sealdport" lubrication the lubricant ducts are so arranged as to furnish an unbroken ring of "Merco" Lubricant around both inlet and outlet ports of the valve when it is in closed position, maintaining at all times continuity between the lubricant chamber in the base of the valve and the supply of lubricant in the plug shank. This ingenious method of lubrication is secured by four vertical

grooves in the body of the valve and four horizontal grooves in the plug of the valve, located above and below the port of the plug in such a manner that contact is always made between two vertical ducts while the plug is being turned and forming complete rings of lubricant around both inlet and outlet ports when the valve is in the shut-off position.

A distinct advantage of the "Sealdport" method of lubrication is that, if at any time a leak should occur through a properly adjusted valve, the addition of a small amount of "Merco" Lubricant will immediately seal off the leakage. In addition to the prevention of leaks, "Sealdport" lubrication frees the plug should it ever be tight.

Ask for Latest Catalog

"Merco" Lubricants should always be used in Nordstrom Valves. A complete line of special lubricants for every valve service. Complete information on request.

"Merco" Pipe Compound is a metallic lead product for sealing screw thread or gasketed joints. Will not corrode or freeze the joint. Easily applied.

THE
PERFECT APPLICATION
OF A PRINCIPLE

MERCO NORDSTROM VALVE COMPANY SUBSIDIARY OF THE MERRILL COMPANY . . ENGINEERS

Atlanta - Healy Bldg.
Boston - 184 Boylston St.
Buffalo - Genesee Bldg.
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St. Louis - 317 N. Eleventh St.
San Francisco - 343 Sansome St.

Agencies:

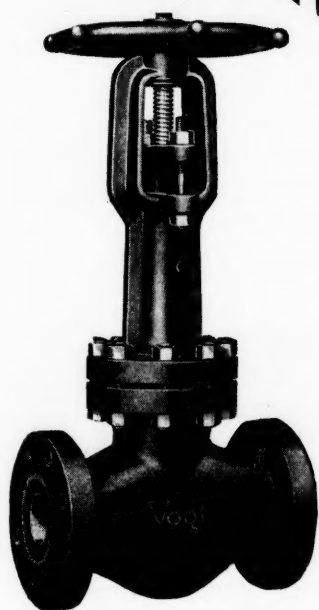
Denver - Republic Supply Company, 532 Continental Oil Bldg.
Honolulu - W. A. Ramsay Co., Ltd., Fort & Queen Streets
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Buenos Aires, Argentine - General Electric, Soc. Anon., Victoria 618 Esq. Para.

NORDSTROM VALVES

Plants like *this* know the meaning of **DROP FORGED!**



Only drop forging definitely assures valves and fittings of fine grain structure free entirely of hidden defects so common in poured metals. Where high pressures and temperatures are involved there is just one dependable, metallurgically correct valve and fitting and *that is*

Vogt Drop Forged

HENRY VOGT MACHINE CO.

Incorporated

LOUISVILLE, KY.

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Manufacturers of: Oil Refinery Equipment, Drop Forged Steel Valves and Fittings, Water Tube and Horizontal Return Tubular Boilers, Ice Making and Refrigerating Machinery, Heat Exchangers.

Vogt
Drop Forged Steel
**VALVES &
FITTINGS**



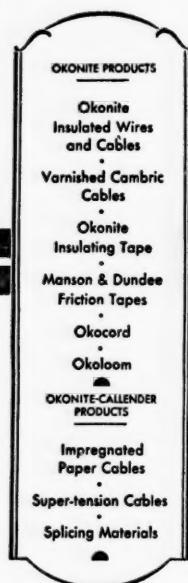
ARE THEY WORTH IT, THOSE FEW CENTS SAVED ON WIRE?

INSULATED wire and cable for the electrical equipment of a plant are highly competitive supplies and can be bought at varying prices. There is ample opportunity for making small savings by close buying.

But is it wise to pinch pennies on wire purchases?

Too many vital plant operations depend upon an unfailing supply of electricity to take chances with the quality of the insulated wire and cable used. The savings made possible by close buying are insignificant compared to the cost of one failure. In the purchase of wires and cables it pays to buy brands of proven performance.

For over half a century, OKONITE insulated wires and cables have set the standard for top-quality. This recognized dependability in all kinds of service is one of the established facts of the electrical industry. Their use for industrial plant wiring insures that everything possible has been done to eliminate shutdowns which may be due to the failure of current carrying circuits. In this respect, it is an important economy to specify and purchase OKONITE.



THE OKONITE COMPANY

Founded 1878

THE OKONITE-CALLENDER CABLE COMPANY, INC.

Factories: Passaic, N. J.

Paterson, N. J.

SALES OFFICES:

NEW YORK
BIRMINGHAM

CHICAGO
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BOSTON
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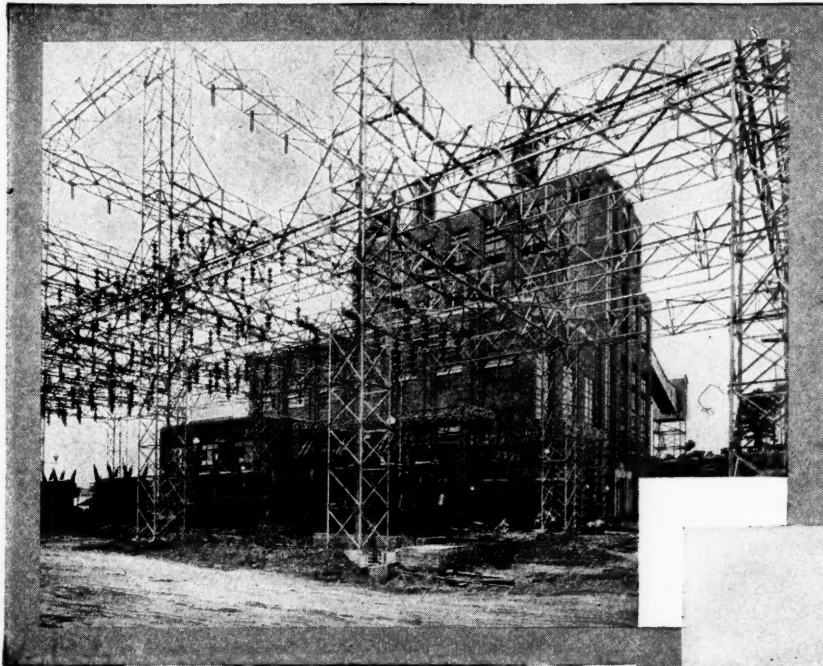
Novelty Electric Co., Philadelphia, Pa.
F. D. Lawrence Electric Co., Cincinnati, O.

Canadian Representatives:
Engineering Materials, Limited, Montreal

Cuban Representatives:
Victor G. Mendoza Co., Havana

OKONITE QUALITY CANNOT BE WRITTEN INTO A SPECIFICATION

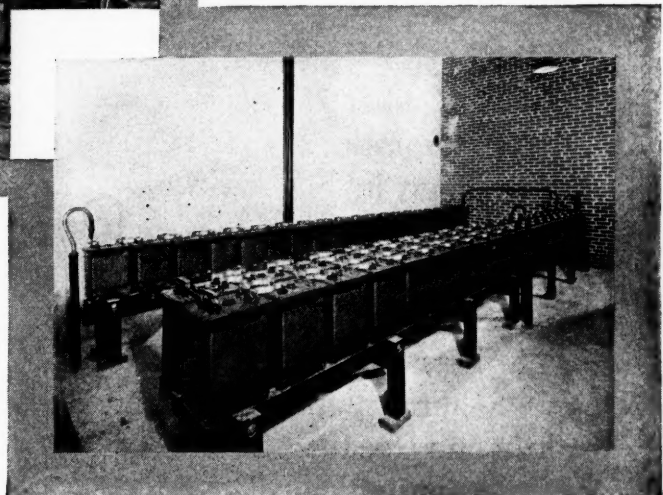
LARGEST *steam-electric* *generating plant in* **GEORGIA**



PLANT ATKINSON, new 100,000 h.p. steam-electric generating plant of the Georgia Power Company, relies on 60-cell Exide Battery for dependable control bus operation. Note the four high voltage oil circuit breakers in foreground.

A TYPICAL INSTALLATION of a large capacity 60-cell Exide Control Bus Battery.

*relies on
an Exide Battery
for dependable
control bus
service*



ON OCTOBER 17, Plant Atkinson of the Georgia Power Company was dedicated.

This marked the completion of the largest steam-electric generating plant in Georgia and one of the largest in the Southeast. 100,000 horsepower . . . latest and most up-to-date equipment . . . this new plant will extend power service to thousands of homes.

To assure dependable power supply for circuit breaker operation, a 60-cell Exide Battery, with a 608-

ampere-hour capacity at the 8-hour rate has been installed.

Exide Batteries have long proved an asset to the great majority of power and light companies in the country. The long, active life, unfailing performance, and economical operating cost of these batteries are well known to engineers. When

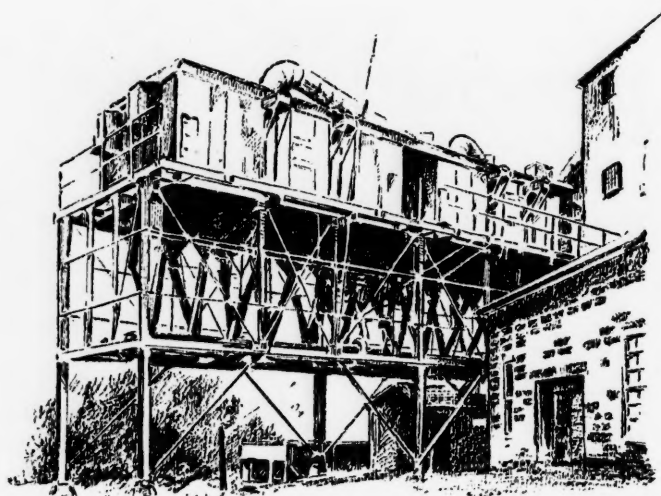
you buy an Exide you know that forty-two years of building batteries for every purpose assure you of *absolute battery dependability.*

Exide BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia
THE WORLD'S LARGEST MANUFACTURERS OF STORAGE BATTERIES FOR EVERY PURPOSE

Exide Batteries of Canada, Limited, Toronto

DUST...



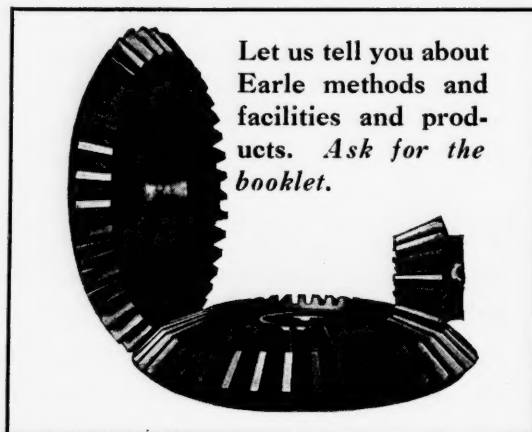
“to brush or wipe dust away from...”

*E*VER hear of the Pangborn Corporation? They're the folks down in Hagerstown, Md., who do the dusting for big business—who build and install dust collecting and disposal apparatus. They'll make a room or building or 20-acre plant as bright and clean and free from dust as a forest in the mountains.

Pangborn buys Earle Gears . . . likes Earle Gear service, quality and promptness. And Pangborn is one only of many concerns who find it satisfactory and profitable to use “Gears by Earle.”

Let us show *you* why it would be profitable to so mark *your* gear orders.

The Earle Gear & Machine Co.
Philadelphia, Pa.



Let us tell you about Earle methods and facilities and products. Ask for the booklet.

GEARS BY EARLE



The
latest
Development

The new
FULLER LEHIGH
Type "B" PULVERIZER

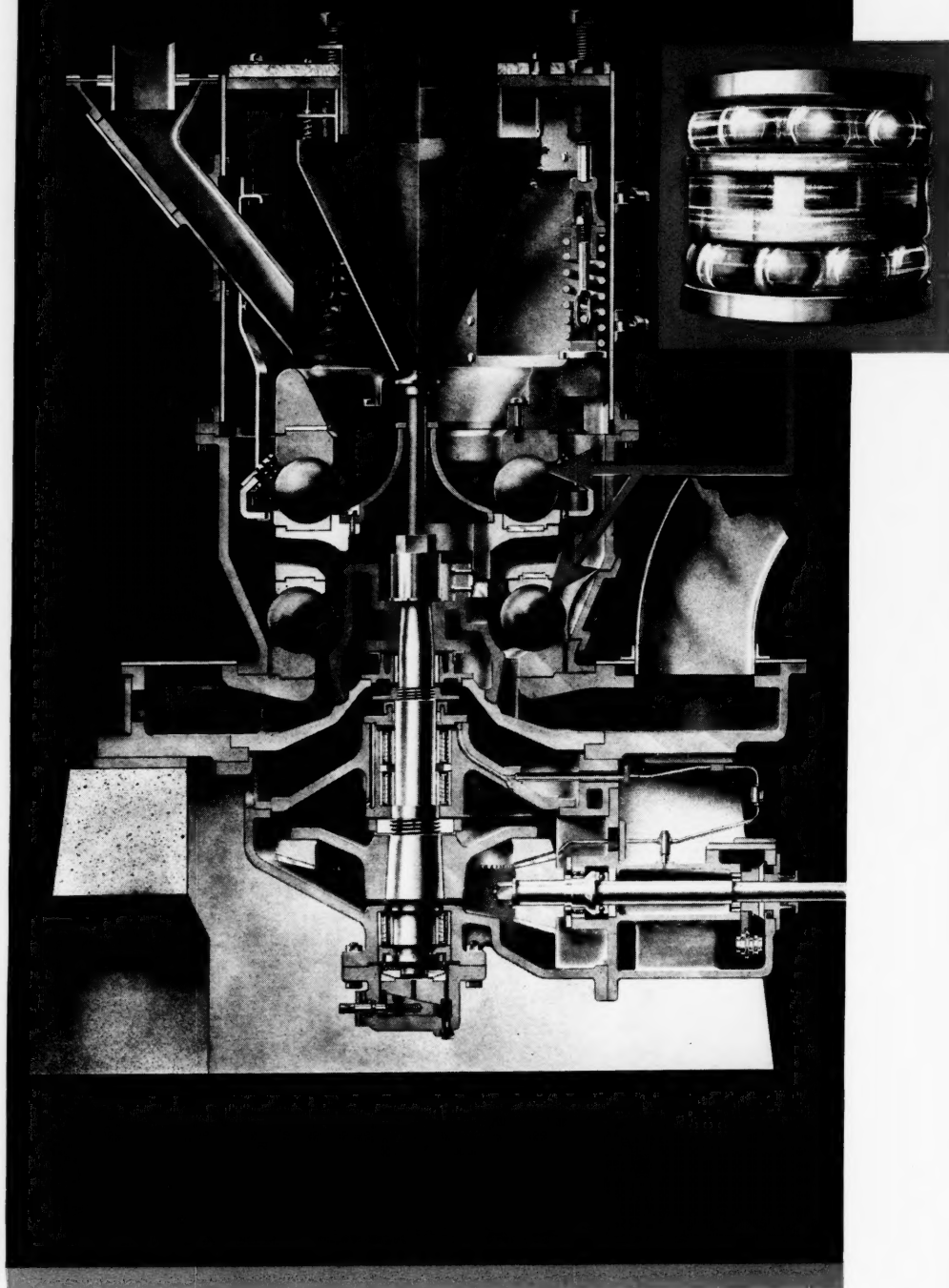
Sets new standards of Pulverizer Performance

An Air Separation
Ball Mill

THE PULVERIZER THAT MEETS THESE SPECIFICATIONS



- 1** Small floor space for given output.
- 2** Constant speed motor drive.
- 3** Low power consumption.
- 4** Power varying with rate of coal feed.
- 5** No lubrication within grinding zone.
- 6** Grinding zone sealed from parts requiring lubrication.
- 7** Smooth running and quiet.
- 8** Grinding pressure independently applied and not dependent on speed of mill.
- 9** Wide operating range—full capacity to the minimum permitted by the burners.
- 10** Responds quickly, but not too quickly, to change in rate of coal feed.
- 11** No metal to metal abrasion of grinding parts.
- 12** Fineness not affected by wear of grinding parts.
- 13** Fineness always under control.
- 14** Pulverize coal of any hardness or grindability.
- 15** Maintenance exceptionally low



THE urgent need for a better and a more efficient pulverizer is met by the new Fuller Lehigh Type "B" Pulverizer.

Its sturdy construction, simplicity of control with few adjustments for changing the output, makes it particularly well suited to serve both large and small direct-

fired boilers, including those units which have rapidly fluctuating industrial loads. The mill is equally well adapted to the requirements of the Storage System.

There is a size Type "B" Pulverizer for practically every requirement. Let a Fuller Lehigh Engineer tell you what this mill can do for you.

FULLER LEHIGH COMPANY, FULLERTON, PENNA., A Babcock & Wilcox Organization

FULLER LEHIGH

PULVERIZED-COAL EQUIPMENT ♦ WATER-COOLED FURNACE WALLS



GIVING WINGS TO POWER

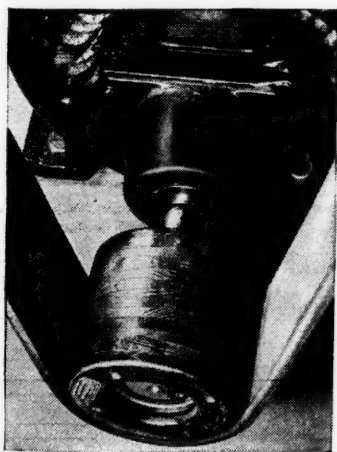
"Speed up" is the watchword of modern industry. For in this day of close competition your profit may depend on the turn of a pulley. Don't let your pulleys limit your plant's efficiency. Standardize on AMERICAN Pressed Steel Shafting Pulleys—modern, scientifically correct for the particular duties they perform in the carefully studied transmission systems of today.

Designed with great strength, yet light in weight, they "give wings to power" by reducing the dead load on shafting. Thin A-braced arms cut the air instead of fanning it. AMERICAN Pulleys possess a higher coefficient of friction at high speeds due to the exclusive grooved air escape that dissipates the air cushion under belt. More dependable, they withstand greater stresses and reduce costly interruptions in production schedules.

Ask any dealer about these better pulleys or write for further information.

THE AMERICAN PULLEY COMPANY
4200 Wissahickon Avenue - - Philadelphia, Pa.

Pressed Steel: Shafting Pulleys, Hangers, Hand Trucks, Miscellaneous Stampings. Sprucolite Motor Pulleys, Machine Pulleys.



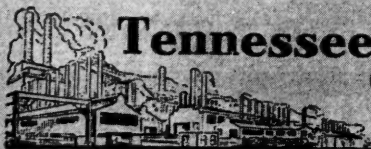
AMERICAN Sprucolite Motor Pulleys and Machine Pulleys are made from a specially developed and extremely durable synthetic material. They possess the highest coefficient of friction, and are considerably lighter in weight than wood, cast iron or paper pulleys.

AMERICAN
PRESSED STEEL | STEEL SPLIT
HANGERS | PULLEYS
PATENTED | PATENTED

'Cross Mobile Bay



Approaching the City of Mobile from the East and constituting an important link in the Old Spanish Trail between Jacksonville and New Orleans, the several separate structures comprising the Cochrane Bridge cast their imposing spans across Mobile Bay and the adjacent low lands. Permanence, strength and rugged beauty have been built into these bridges through the use of Tennessee Structural Steel.



Tennessee Coal, Iron & Railroad Company

General Offices: Brown-Marx Building, Birmingham, Ala.

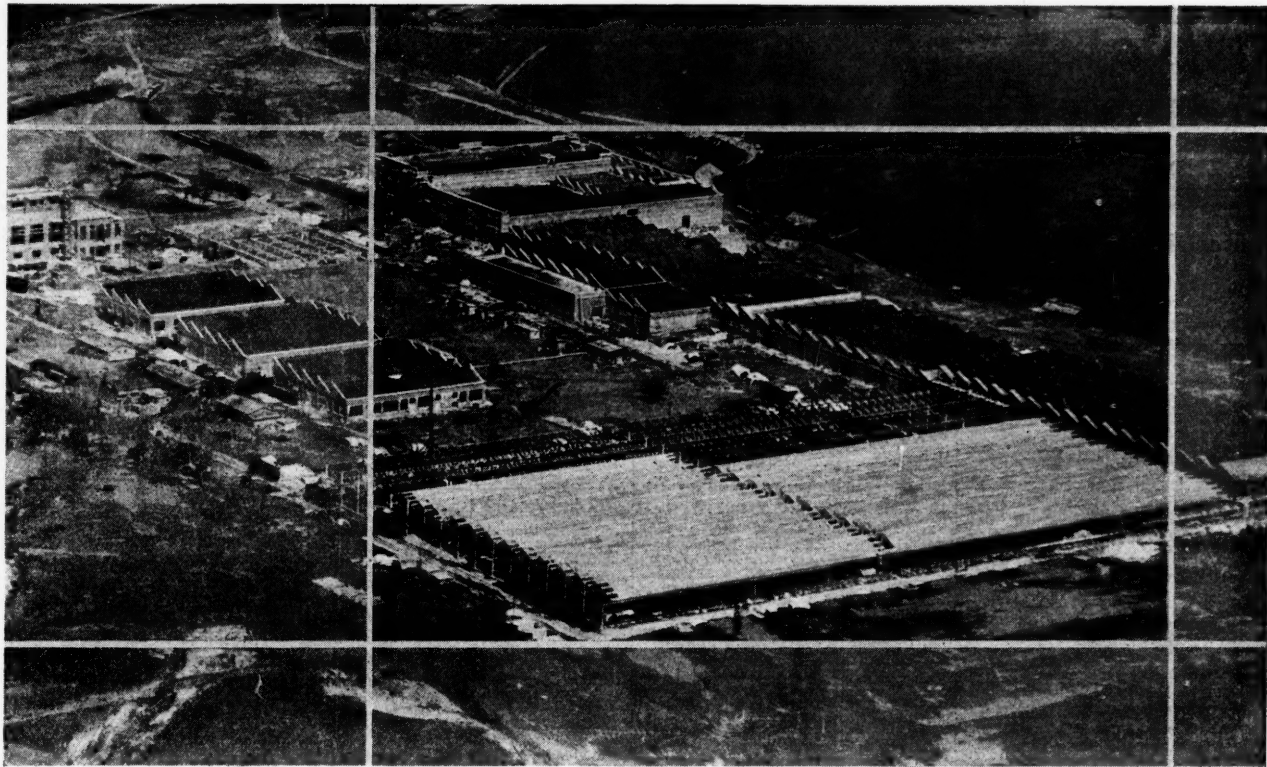
SUBSIDIARY OF UNITED STATES STEEL CORPORATION



AMERICAN BRIDGE COMPANY
AMERICAN SHEET AND TIN PLATE COMPANY
AMERICAN STEEL AND WIRE COMPANY
Pacific Coast Distributors—Columbia Steel Company, Russ Bldg., San Francisco, Calif.

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COLUMBIA STEEL COMPANY
CYCLONE FENCE COMPANY
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ILLINOIS STEEL COMPANY
NATIONAL TUBE COMPANY
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THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & RAILROAD CO.
UNIVERSAL ATLAS CEMENT COMPANY



Rayon Plant, American Enka Corporation, Asheville, N. C. H. K. Ferguson Co., Cleveland, Engineers and Builders. We furnished the steel work, over 5000 tons

A Landscape Gone Industrial

SO many acres of countryside, so many feet of foundations, so many tons of steel, brick and roofing, all shaped to a definite plan and the stage is set for an industrial romance.

Things are happening over this country today, and particularly in the South, that were never dreamed of.

A few years back Rayon was scarcely heard of. Today it bulks large in the affairs of many communities which, except for this wonder of chemistry, would still be thinking and dealing mostly in the products of the soil as they have for generations past.

Partly by the incident of location, but more especially because of a reputation of thorough capability in steel construction, we have participated in most of the important rayon projects in the South, including the American Enka Corporation at Asheville, N. C., which is said to be the largest initial plant unit so far built.

We shall be glad to assist you with designs and estimates on your steel requirements whether large or small. Or if you are not as yet decided on the use of steel, we would like to tell you of its advantages and economies,—with no obligation on your part.

VIRGINIA BRIDGE & IRON CO
 Roanoke Birmingham Memphis Atlanta New Orleans
 New York Los Angeles Charlotte Dallas El Paso

VIRGINIA BRIDGE
 STEEL STRUCTURES

DIRECTORY

ARCHITECTS

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CHEMISTS

GEOLOGISTS

CHEMICAL ENGINEERS

ACCOUNTANTS

CONTRACTORS

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JACKSONVILLE — NEW ORLEANS

Airmap Corporation of America

Aerial Surveys and Maps
Consultants and Engineers
The AIRMAP—The Engineer's Aerial
Map for City Planning, Water
Supply Studies, Zoning,
Complete Aerial Tax Map Service
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Ira G. Hedrick, Inc.

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A. S. C. E.

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Designs, Supervision, Estimates, Bridges
and Structural Work.
HOT SPRINGS NAT'L PARK, ARK.

Charlton & Davis

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MIAMI FORT LAUDERDALE
WEST PALM BEACH

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Civil-Hydraulic Engineer
Industrial Hydro-Electric Development
a Specialty
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AUGUSTA, GA.

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Consulting Engineer

Civil, Structural, Natural Gas
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J. E. Greiner & Company

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Design, Construction, Investigation, Ad-
visory Service—Bridges, Docks, Piers,
Warehouses and other Engineering
Structures.
1201 St. Paul St. BALTIMORE, MD.

Whitman, Requaardt & Smith

Engineers

Water Supply, Sewerage and Structural
Engineering, Reports, Design,
Valuations.
Baltimore Trust Bldg. BALTIMORE, MD.
ATLANTA, GA. ALBANY, N. Y.

Chas. T. Main, Inc.

Industrial Engineers

Mills, Warehouses, Complete Develop-
ments.
Electrical, Steam and Water Power
Reports Appraisals
201 Devonshire St. BOSTON, MASS.

C. A. P. Turner

Consulting Engineer

M. Am. Soc. C. E. Reinforced concrete
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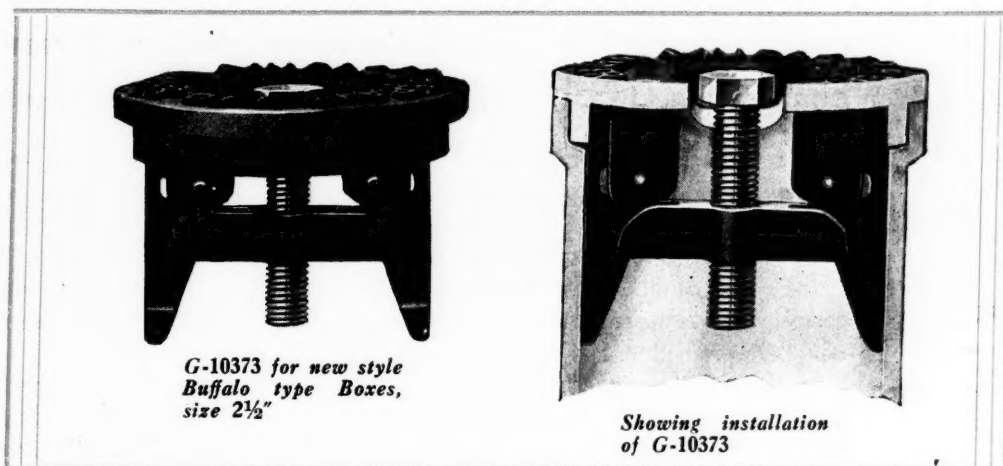
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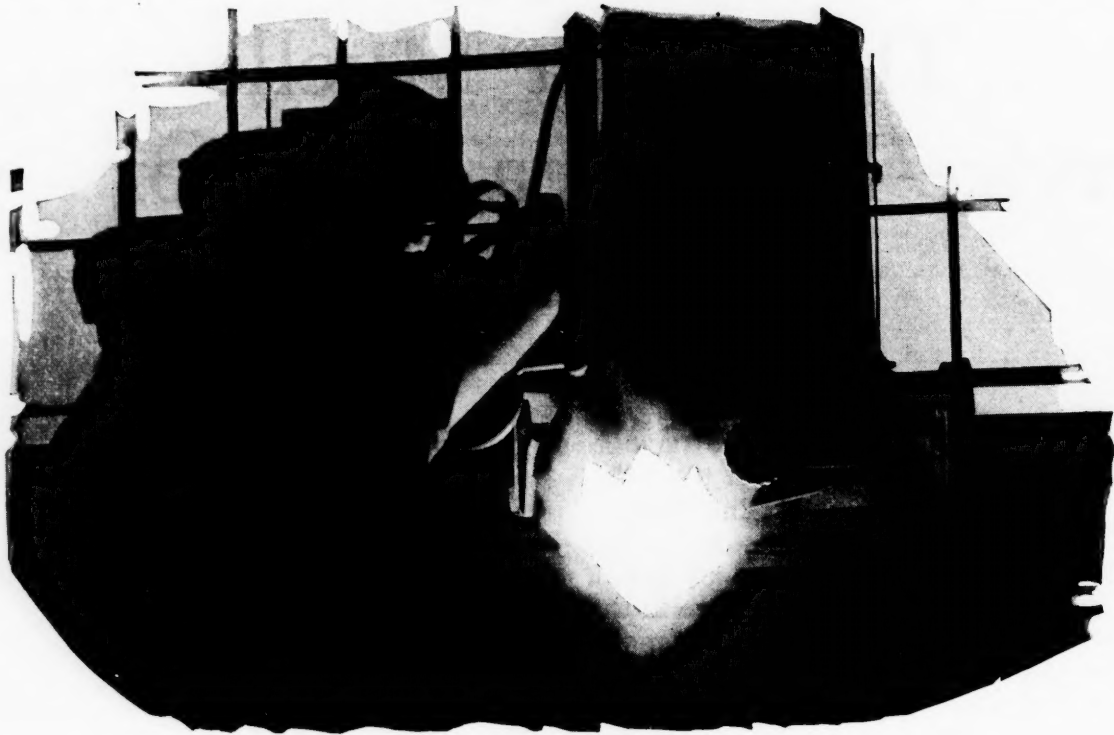
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Baltimore, Md., November 27, 1930

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MAIN OFFICE
Manufacturers Record Building,
Commerce and Water Streets,
Baltimore, Md.

Published Every Thursday
by the
**MANUFACTURERS RECORD
PUBLISHING Co.**
FRANK GOULD, President

BRANCH OFFICES
Chicago—11 S. LaSalle St.
New York—901 Singer Bldg.

Subscription Rates: \$6.50 a year (in advance); six months, \$3.50; three months, \$2.00 to United States, Mexico, Cuba, Porto Rico, Hawaii and the Philippines. For Canada add postage \$1.00 a year. For other foreign countries add postage \$3.50 a year.

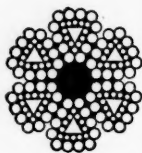
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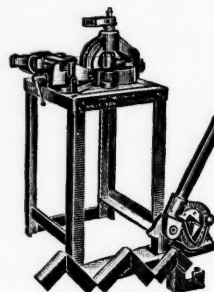
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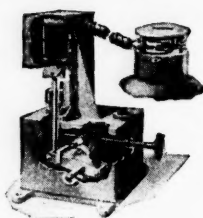
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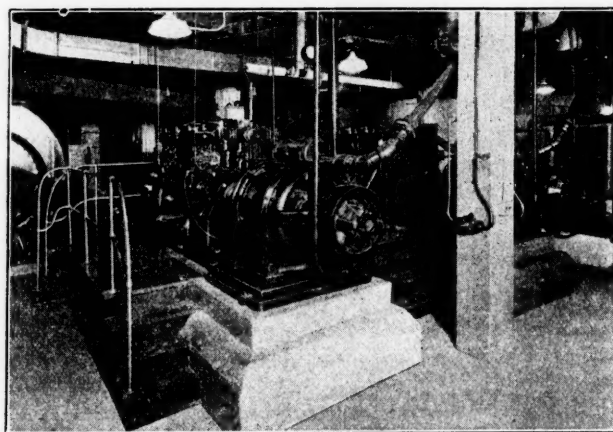
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Vol. XCVIII No. 22 }
Weekly }

BALTIMORE, NOVEMBER 27, 1930

{ Single Copies, 20 Cents.
\$6.50 a Year. }

American Industry Belongs at Home

WHILE approximately 3,500,000 American men and women are without work in the United States, 500,000 foreign workers are reported to be drawing wages in American-owned industrial plants in foreign lands. Each one of these employed foreigners represents one American who might be employed.

The investment of American capital abroad for the purpose of developing the natural resources of foreign countries and thus increasing the world's wealth and America's domestic industrial opportunities presents a very different economic picture from that of the foreign investment of American capital in manufacturing or assembly plants whose purpose is to produce more cheaply.

American automobile plants may be found in France, Italy, Spain, Ireland and other countries. Seventy-nine American branch plants in various lines in Germany were reported by the United States Department of Commerce at the opening of this year, with others scheduled for early erection. It is estimated that 1500 American branch factories are established in Canada. The list of commodities manufactured in American plants in foreign lands ranges from silk gloves to threshing machines and includes machine belts, toilet articles and a wide variety of other goods.

American capital that is now being invested in wage-saving plants abroad was created with American resources by American industry working in safety under American laws. It is right and proper that it should be used for the creation of additional capital, but this should not be done at the expense of American labor.

On a wage estimate of \$5 a day for each of the 500,000 Americans whose work now is done by foreigners in American plants in other lands, American workers—now non-workers—and their dependents are losing \$2,500,000 a day, or \$750,000,000 a year; probably \$1,000,000,000 would be nearer the correct figure.

The United States not only suffers the direct loss of this estimated \$1,000,000,000 annually. In reality its loss is much greater, for this annual \$1,000,000,000 would filter through a thousand and one channels into all lines of retail trade. The absence is felt in the slow-down of American industries which otherwise would have to meet this increased demand for food, clothing and all other commodities.

American restriction of immigration, professedly imposed for the protection of American workers, is nullified to the number of half a million, so far, by the establishment of American branch plants in foreign lands, and this number will progressively increase above that figure as more and more such plants are opened. Inevitably and automatically, the American export trade must diminish in proportion, thus adversely affecting American transportation enterprises and American shipping, the railroad shops and shipyards, and many other branches of American work involved directly and indirectly.

No nation can take a loss of \$750,000,000 to \$1,000,000,000 a year without imposing serious evil on its economic condition and the morale of its people.

To say that the American protective tariff is solely responsible for this migration of American industry to foreign lands is fallacious. To attribute the migration to foreign tariffs is only partly true, and if true it is a sad and probably undeserved reflection on the great American industries which in the past under able leadership have competed successfully with the cheap labor and cheap living conditions prevalent abroad.

Adoption of a protective policy by foreign countries has not been in the nature of retaliation against the American tariff, but, as has been asserted by more than one foreign speaker, because these foreign countries have found free trade an economic failure. In spite of our protective tariff, foreign goods still pour into the United States. The American protective tariff is far from prohibitive.

In years past, when the protective tariff was not in favor in foreign lands, American industry and business competed successfully abroad with the near-pauper products of other countries. As other countries turned more and more toward the protective tariff, American industry more and more reduced production costs, through refinement of processes, ingenious inventions and new discoveries.

Foreign tariffs have not been evoked as a retaliatory measure against the United States. American industry, we are persuaded, can meet foreign tariffs with American-made goods, just as in the past at higher American production costs it competed successfully in foreign lands against low-cost foreign goods.

As some economists profess to see the situation, this migration of American industry abroad will be help-

ful to foreign workers and American workers alike. Higher wages and better living conditions abroad, they argue, will promote heavier buying by foreign peoples. They fail to add that such increased buying will be done abroad.

The MANUFACTURERS RECORD believes in high wages for all men and women, abroad as well as at home but it does not believe in any movement that may tend eventually toward lowering the American standard of living. It hopes that, gradually and progressively, foreign wages and living conditions will advance toward the marvellous heights attained in the United States. But these American standards must be maintained. Any business policy aimed at pulling down our living standards is economically unsound from a national standpoint.

American industry belongs to America. Its fruits belong to Americans.

A Square Deal for the Railroads

ALBA B. JOHNSON, president of the Railway Business Association, a national organization of concerns dealing in equipment, material, supplies and services to railways, has issued a statement emphasizing the rather alarming situation confronting the railroads of the country. In referring to the government regulation of railroads, power companies and other utilities, Mr. Johnson says:

"The country is drifting toward government ownership and operation. Some lawmakers are theoretically opposed to this in any field. A certain number embrace particular projects in which they think they see an advantage for themselves or their localities, while protesting that this exception in fact leaves them spotless defenders of the general policy. The truth of course is that whoever takes that position throws his influence on the general policy out the window. Nobody can take him seriously.

"Finally, and this applies especially to railways, there are those who imagine or at least say that they abhor the thought of government ownership yet who are unwilling to lift a finger in opposition to policies and courses which are heading us straight for a transportation collapse and consequent federal seizure of the properties. Indeed, the country appears to have fallen into the habit of regarding the railroads as having been saved once for all in 1920 and thenceforth, world without end, able to stand up under any maltreatment whatever. Accordingly, citizens ordinarily considered responsible engage cheerfully and even gaily in such diversions as rate adjustments made blind-fold, taxation rising faster than anyone's else, and the development of competing forms of transport on the basis that the railroads are a sort of inexhaustibly rich uncle animated by benevolence toward those unable to take care of themselves, a kind of magic self-filling community chest."

The railroads should place their case before the people. The growing competition of other forms of transportation, practically all of it unregulated, and subsidized, in a sense, through public moneys invested in highway and waterway development and maintenance, has reached a point where it cannot be ignored. The railroad labor unions are now considering a request for a 6-hour working day. We are fully aware of the need for developing every form of transportation to meet the growing demands of the United States, but we do not believe that it is fair to favor any one particular transportation medium.

All will be needed in the future and each should be developed on sound, economic lines.

Last week we published an article by A. E. Clift, president of the Central of Georgia Railway Company, giving a clear-cut statement of the railroads' business and the problems they face in meeting truck and bus competition. In this issue is an article by C. Mc. D. Davis, vice president of the Atlantic Coast Line, who tells of what the railroads in the Southeast are doing to speed up traffic and increase efficiency.

The railroads are the backbone of the nation's transportation system. They have stood a good many hard knocks, some of which were brought on by unwise railroad management in days past. But that is an old story now and certainly no such criticism applies to present-day management, which is giving the public the best service in railroad history. Never have the railroads been operated more efficiently. They have accomplished this after making a remarkable recovery from practical bankruptcy, when the railroads were well-nigh wrecked, their capital investment dissipated and business penalized because of inadequate transportation facilities following government operation during the war.

Since 1920 the railroads have improved road bed, rolling stock and other equipment, and they are now offering the American public quick and dependable transportation. The railroads have been one of the vital factors in national development. In turn, they are being treated like a stepchild in the industrial family of the nation. Let us give the railroads a square deal before it is too late to prevent a transportation collapse.

Artistic Triumphs in Structural Steel

ONE of the subjects stressed at the recent annual meeting of the American Institute of Steel Construction was the tremendously important field which has opened in bridge building and in the development of artistic iron and steel structures. In the advertising columns of the MANUFACTURERS RECORD there is constantly reflected not only the invention and skill of American designers and builders in accomplishing the practical, but frequently there is exhibited a degree of artistic ability which makes these advertisements a vivid portrayal of worthwhile work.

We are impressed in this connection with the series of full pages now being utilized by the McClintic-Marshall Company to present pictorial illustrations of what they have accomplished in the construction field. The advertisements are prepared from actual photographs of work done in all parts of the country. No one can see them without understanding something of the great advance made in the art of design in such massive iron and steel structures.

He that hath a trade hath an estate.—*Franklin's Poor Richard.*

Depositors' Money a Sacred Trust

BUSINESS men are not prepared to draw conclusions from the closing of a number of banks in several states last week, but certain facts stand forth.

First of all, to imagine that the involvement, serious as it may be, will cause a vital impairment of the financial structure in these states, is wholly unjustified. That reflects a state of mind that too often follows a local crisis.

Likewise, to suppose there will be any prolonged halt in the development and progress of Tennessee, Arkansas and Kentucky, by reason of these failures, is unreasonable.

Most of the banks that closed were small institutions of only local importance. Most of them have either already resumed or soon will resume operations. The loss in money to depositors in such cases will be little or nothing. The "news" has been played up and exaggerated. The bank resources of the three states are \$1,500,000,000—hardly a sum to be lightly disregarded by the most extreme of pessimists.

The captains of great industries in these commonwealths who spend their time and money in vast development enterprises, the mills and factories, the mines and railroads will require no reassurance on these points. It is rather to prevent misconception elsewhere that it is proper to call attention to the fact that it is not a question of what states may or may not be hurt temporarily by the financial jugglery that seems to have taken place in certain large institutions, but rather that it did take place, and to that extent brings up for discussion things from which we should draw a lesson.

Until the final facts are known, it is not seemly to pass definite judgment, but it is apparent from what has been disclosed that politics can make a mess of banking, as has often happened in other businesses.

There must be aroused in this country an insistent demand for greater supervision of private banks and state banks, and every kind of institution that asks for deposits. The whole subject of chain banking and branch banking must be gone into thoroughly, because both systems are up for scrutiny. Money on deposit in banks is a sacred trust. It is earned by too much toil and sweat to run the risk of being frittered away by men who dream of empire for their own aggrandizement. Any system is only as strong as its weakest link.

While it may not be as apparent in the present occurrence as it has in the past, it is true and the records will bear this out, that a large proportion of bank failures in this country, among the smaller banks, has been due to insufficient capital. It has been almost a popular pastime for anyone to start a bank, although it is a highly specialized business that takes a lifetime to learn.

There is no need of panicky feeling about this unhappy occurrence, because after all it is just as well that the pyramid toppled before it grew too tall, but there is need and immediate occasion on the part of the national body of lawmakers and of the states, not

only to probe to the bottom of such affairs that bring unhappiness to so many, but as well to adopt measures that will prevent their recurrence.

Conservation Must Be Voluntary

FAR from disputing that the conservation of oil is an imperative national duty, as the National Industrial Conference Board expresses it in a report, we go further and suggest that the conservation of all other natural resources is equally important for the welfare of the present and future generations. For this reason, it may be hoped that equally diligent research will be conducted concerning these resources.

As the report puts it, the conservation program for crude oil is based on three main propositions: The supply of crude oil should be considered as limited from the viewpoint of future needs; motor fuel and lubricants are the most essential oil products, since fuel oils could be more readily replaced by coal; a program involving an increase in the percentage of gasoline recovered from crude oil, from 39 per cent at present to 60 per cent, is feasible and would result in a corresponding decline in the percentage of fuel oil produced.

Emphasis laid on the fuel oil output may be attributed to the fact that the increased use of such oil for commercial and domestic heating in the North Atlantic and Middle Western States has more than overbalanced the decrease in consumption by oil companies and public utility electric plants. A factor also is the arrival at peak consumption of such groups as marine, railroad, gas manufacture and general manufacturing. Curtailment by 50 per cent in the fuel oil supply, based on 1928 conditions, would reduce it to 200,000,000 barrels, and proportionately would bring domestic consumption down to 180,000,000, if the net export figure of 40,000,000 barrels also were cut in half.

While coal naturally suggests itself as a leading factor in the replacement of this proposed fuel oil curtailment, natural gas, so abundant in the South and susceptible to cheap and easy transportation to other areas, also must be thoughtfully considered. Gasoline and increased waterpower development, too, would take up their full respective share of the fuel oil slack.

Under the Federal Anti-Trust laws, it appears, concerted action toward even reasonable regulation of crude oil production is not legally permissible, and the end must be attained through cooperation and voluntary action by the producers. Thus, as in the case of wheat and cotton and other natural resources outstanding especially in the South, the safeguarding of the crude oil industry rests virtually in its own hands. Ways and means for businesslike regulation of all industry would not be found hard to devise and apply if existing laws were reasonably modified.

There is no better capital for any man than civility.

More Chemical Products From the South

By PROFESSOR CHARLES E. MULLIN, Division of Textile Chemistry,
Clemson College, S. C.

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PROBABLY the packing house industry was the first to use so-called waste products on a really large scale. Many other industries followed its lead and today the profits of many plants are based entirely upon the sale of products which were at one time a disposal problem. Gasoline and paraffin are examples of such former waste products.

The successful and profitable use of by-products of any industry is one of the major problems of today. The success of the dyestuffs manufacturers is well known and has served to stimulate research along these lines in many other branches of the chemical industry, with the result that the value of many processes and plants has been considerably increased.

The Farmer's Problem

At present, we hear a great deal about the financial difficulties of the farmer, particularly the cotton farmers of the South, but we hear very little about research upon the utilization of his waste products. Chemical research upon the waste products of the farm might do him a lot more good than some of the proposed legislation which failed to pass. Most of the agricultural research in America has been conducted on soils, fertilizers, animal breeding, foodstuffs and feeding, plant breeding, etc. Very little chemical research has been conducted on the utilization of the refuse of the farm, with the possible exception of cornstalks and cobs.

Industrial Alcohol Fuel

In Europe, and particularly in Germany, a great deal of the waste fruit, vegetable and other plant refuse is used locally in small farm distilleries for the production of industrial alcohol, which is largely consumed as fuel in agricultural and other machinery. Alcohol can be produced from any material containing either sugar, starch or cellulose. Whether this can be done economically depends largely on the cost and condition of the raw material. Alcohol can be made from sawdust, grass, weeds, cull apples or potatoes, potato or cotton plants, cornstalks or any other variety of plant material. Whether such a process would be financially successful on a commercial scale, would largely depend on the constant availability of a sufficient supply of the raw material and the assured sale of the product. In the case of farm refuse, however, it is possible that much of the product could be

used by the farmer, on the farm where it was produced, as fuel for his gas engines, automobile, tractor, stoves, etc.

Although we generally use gasoline in gas engines, the same engine can be used equally well on alcohol fuel by only a very small change in the design of the engine and carburetor. In fact, several automobiles have been run for years right in America on alcohol fuel, without any radical changes in the engine equipment.

There has been much work along these and some other lines on a few waste agricultural products, particularly cornstalks and cobs, and sawdust. Xylose, wallboard, etc., are now made from the cornstalks and cobs. It is claimed that cornstalks are also useful as a source of cellulose for manufacture of rayon or paper. Considerable alcohol was manufactured from sawdust during the war. Rice straw has been found of some value in manufacture of paper. Wood waste and the refuse from licorice root are used in manufacture of wallboard and other wood substitutes, but the field as a whole remains almost uninvestigated and untouched commercially.

Cotton Plant Refuse

In the cotton-growing branch of agriculture, almost nothing has been done on the possible use of cotton plants remaining in the field after cotton is picked. Some work has been done on their value in the manufacture of paper and it has been suggested that they may be of value as a source of cellulose for rayon, etc., but these suggestions come a long way from being of any assistance to the farmer who may be now in financial difficulties. In the South, tremendous areas are devoted to cotton and immense tonnages of cotton plants would be available for any purpose, practically for the cost of harvesting and transportation. In fact, it is desirable on account of the boll weevil, which hibernates in the cotton plant, that the plants be destroyed by burning or otherwise, after cotton is picked. The increased value of the cotton crop, due to sale of the cottonseed for oil manufacture, and of cotton linters, is an important matter to the cotton-growing industry. Is it too much to expect that at some time in the future the value of the cotton plant itself may be worth as much as one or both of these present by-products?

One of the interesting statements on the chemical utilization of cotton stalks

is an anonymous paper from India, published in the Bulletin of the Imperial Institute for 1921. This declares that cotton stalks from the Punjab and Central provinces of India contain about 10.5 per cent of moisture, 40 to 44 per cent of cellulose, and 2.6 to 3 per cent of ash. They yielded 34 to 41 per cent of dry pulp when treated with alkali under conditions similar to those applied in the manufacture of paper. Dry distillation, such as is used in the manufacture of acetic acid from hardwood, gave 35 to 41 per cent of charcoal and 41 per cent of crude pyroligneous acid. The total tar yield was 10.2 per cent, acetic acid 3.4 per cent, and wood alcohol 1.5 per cent. The principal objection to handling cotton stalks was their bulky nature, which necessitated the use of large apparatus. This is not intended as a suggested method of procedure either in research on the utilization of cotton stalks or of industrial operations, but merely to show some of the possibilities along this line and that it is possible to recover some valuable material from this waste. Whether this can be done economically on a commercial scale, remains a problem for solution.

Use for Corn Waste

In the case of the corn waste, this material was found particularly suitable for the manufacture of xylose, formerly a very little used chemical, for which no big demand has as yet been found. However, this development is now in the hands of one of the most progressive chemical companies in the world and we may expect considerable progress in the near future. It is not impossible that the cotton plant may be found to be particularly suited for some purpose. Just what this is and how it may best be handled remain problems for research—problems which should be financed by the Government and conducted in the South, the land of cotton.

A Federal law has made \$1,800,000 of the Textile Alliance Fund available for research in the textile industry. Cotton growing is sometimes not considered as a part of the textile industry, but it is, in actual fact, the foundation of the whole cotton goods manufacturing industry. Whether any part of this Textile Alliance Fund could be used for research on the utilization of the cotton plant is unknown to the writer. There also are many other funds and fellowships available for agricultural research which might be applied to this study.

Progress in Southern Power Industry

Steam and Hydro Projects Contend for Honors—Natural Gas Seen as Twin Giant of Superpower — Increase in Diesel and Gas Engine Installations—Obsolete Steam and Hydro Equipment Replaced to Provide Increased Production Efficiency

By

CARROLL E. WILLIAMS

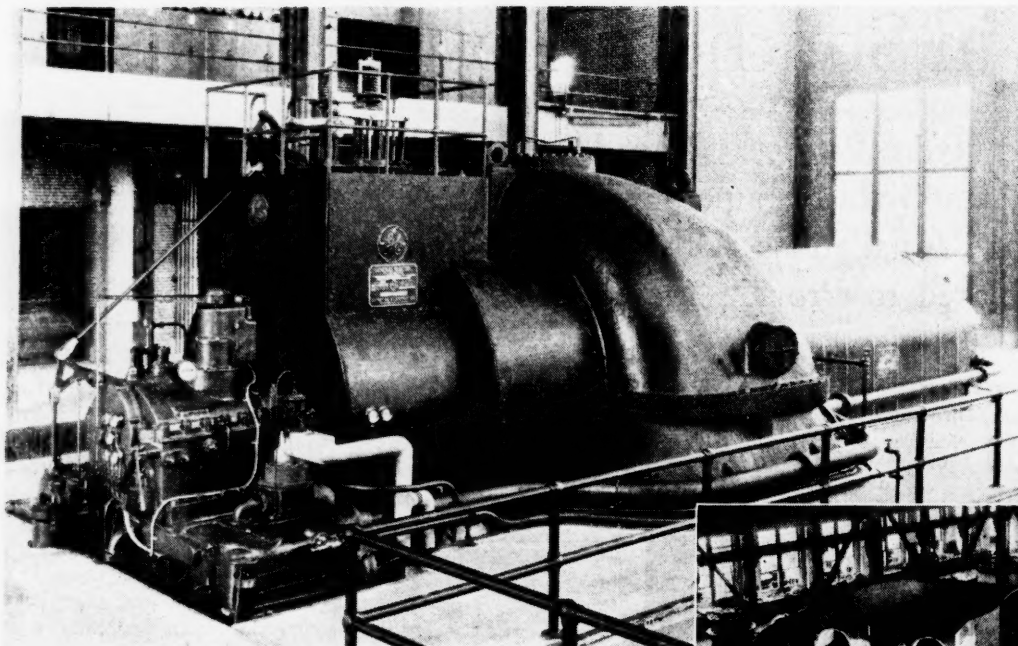
EXPANSION of the power industry in the South continues through 1930. Great hydro and steam-electric generating plants have been completed, others are in course of construction and many are in the proposed stage. Established steam plants are being made more efficient by installation of the latest equipment for production of steam and the generation of power. The height of numerous power dams is being raised to increase the head of water, and old type equipment is being replaced with highly efficient units. High pressure, high temperature boilers, representing the newest and best manufacturers can offer, and complete with complementary equipment, are being installed to replace obsolete units and to insure economy of production in new plants. A rounding out of the interconnected super-power system of the South and Southwest is under way. High power transmission lines are being built to serve rapidly expanding indus-

trial communities and growing individual industrial enterprises. In the aggregate, thousands of miles of new lines are being extended into rural areas, thereby aiding agriculture and facilitating decentralization of industry.

Construction of natural gas pipeline transmission systems from Louisiana, Texas, West Virginia and Kentucky fields through the South and Southwest to distant industrial centers is stimulating activity in many lines and bringing about significant changes in economic and social life. This year, over \$250,000,000 is being expended for such projects. That expansion in this industry will not deter growth of the electric industry, but rather supplement it, is indicated by the formidable expenditure in 1930 for new power plants, transmission lines and general rehabilitation of existing power systems, together with ambitious programs for the future as now mapped out. A number of major power plants serving intercon-

The Consolidated Gas, Electric Light & Power Co., Baltimore, leased the boiler plant erected at Point Breeze by the Western Electric Co. and sells power and steam to the industry. This comprises a complete boiler plant with the usual auxiliaries and coal handling equipment, together with a switch house and turbine room. Should it be decided to generate electricity it will be possible to install the necessary equipment. Hydro-jet system of ash removal is used.





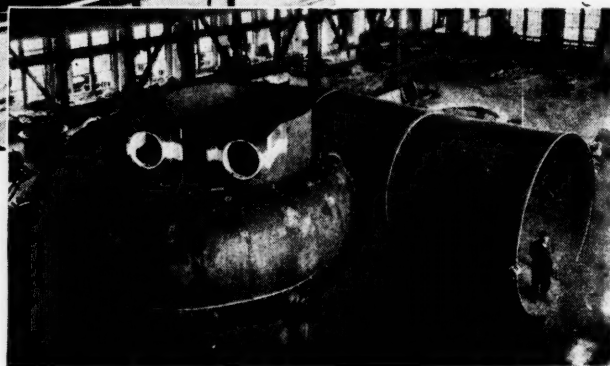
A General Electric turbine installed at Plant Atkinson of Georgia Power Co. on the Chattahoochee River near Atlanta. The first unit of this plant contains 60,000 kilowatts of generating capacity. It is designed for an ultimate expansion to a generating capacity of 400,000 horsepower, four times its present size.

needed systems are using natural gas for fuel. In fact, several lines of up to 200 miles in length have been built solely to serve steam-electric generating plants. The natural resources that abound in the territory traversed by many of these new lines have not been previously developed, largely due to the lack of fuel. Now with gas available in quantity and at comparatively low rates, and with electric power at hand, new industrial developments are being undertaken and expansion of established plants is facilitated due to availability of this product for manufacturing processes as well as for fuel.

Diesel and gas engine installations for generation of power and for use as prime movers in a diversity of industries have increased, and indications are that within the next few years this movement will gain momentum.

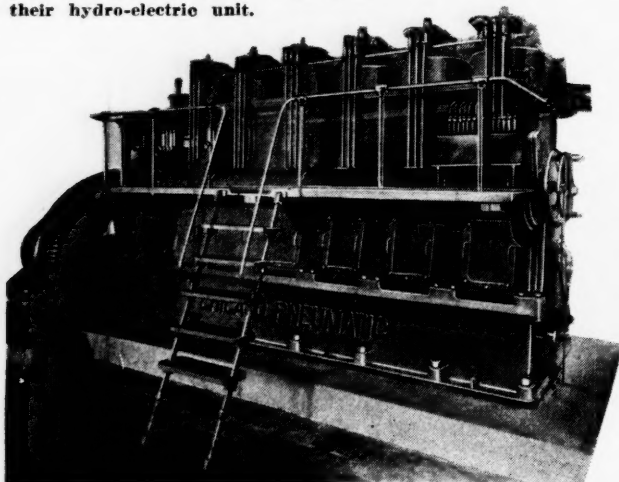
Space limitations prohibit the publica-

A plate steel scroll made by S. Morgan Smith Co., York, Pa., for the Toccoa Electric Power Co., for a unit to develop 30,000 horsepower under 147-foot net head at 163.6 r.p.m.



tion even of brief particulars covering the expansion program of each one of the power companies in the South. However, there are here presented details of representative activities in the industry in all parts of the territory from Maryland to Texas, revealing what is being done to meet demand for power through the building of steam and hydro, and oil and gas engine power plants, in erecting new high power lines, installing distributing systems and sub-stations and modernizing established power systems. Even a cursory examination suffices to indicate the degree of development under way and in prospect.

A 450 horsepower Diesel engine installed at Marshall, N. C., plant of East Coast Utilities; operated in connection with their hydro-electric unit.



Arkansas

Construction of the Carpenter Dam near Hot Springs, on the Ouachita River for the Arkansas Power & Light Co. is under way. It will have a capacity of 80,000 horsepower. Capacity of Remmel Dam, already in operation, is being increased from 13,000 to 25,000 horsepower capacity. These are two of three proposed plants for developing 200,000 horsepower on this river. Carpenter dam will be 115 feet high and 1165 feet long. The lake to be created will be

24 miles long with a total area of 9000 acres. When the third dam of the series is completed, the total storage will be sufficient to take care of the flowage from the entire area of the Ouachita River above these dams, thereby preventing floods and providing for uniform flow that will contribute to navigation in the river below Arkadelphia.

The White River Power Co., H. C. Couch, president, Pine Bluff, proposes three dams in Arkansas to develop 400,000 horsepower, one each on the White River, the Buffalo River and the north fork of the White River, and preliminary work has begun on the north fork project, which will cost \$13,000,000, providing initially for a dam 125 feet high and an installed capacity of 66,000 horsepower ultimately to be increased to 265,000 horsepower. Total cost of the three related projects is estimated at over \$47,000,000.

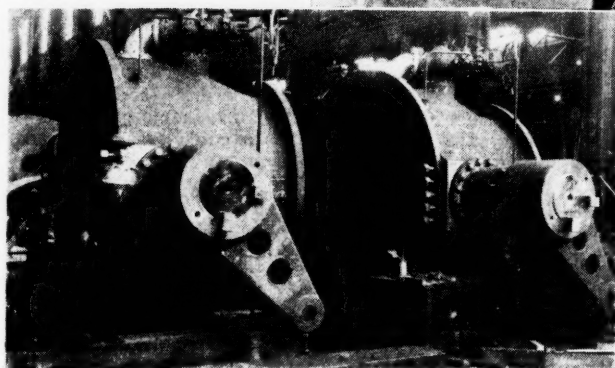
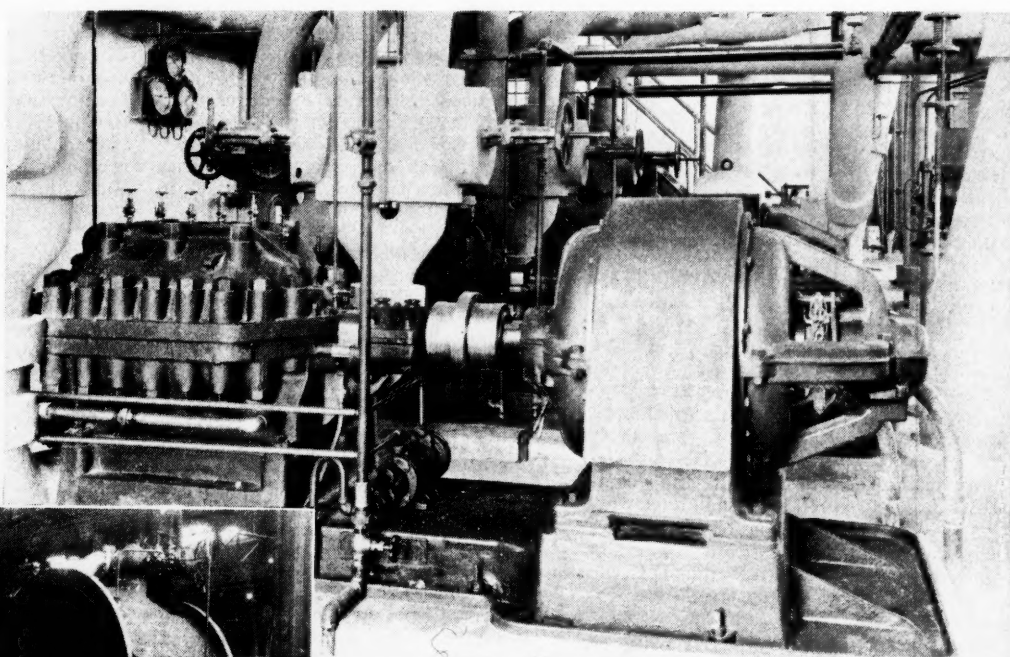
District of Columbia

The Potomac Electric Power Co., Washington, is engaged on a \$6,000,000 construction program. A 30,000-kilowatt generating unit with boilers and necessary equipment is being added to the Benning power plant, which will have a capacity rating of 208,000-kilowatts when completed about July 1, 1931. Two new sub-stations have been erected, and work is under way on underground conduits. Washington Railway and Electric Co., controlling Potomac Electric Power Co., is erecting a \$500,000 garage.

Georgia

Crisp County, Georgia, this year completed the country's first county-owned and county-operated hydro-electric power system. The first unit, which together

Three Cameron six-stage boiler feed pumps at Fort Lauderdale Station of Florida Power & Light Co. Two are driven by 500 horsepower General Electric motors, and one by a 450 horsepower Terry turbine.



View of 84-inch cast steel butterfly valves equipped with 8-inch bypass valves, made by Allis-Chalmers Manufacturing Co. for Carolina Power & Light Co. project.

Electric Co. and the Gulf States Utilities Co., was completed this year. The boiler plant is capable of furnishing over 6,000,000,000 cubic feet of steam annually. Only 60,000 horsepower of electric generating capacity was installed.

Missouri

Hydro electric projects in the Missouri Ozarks if developed as now proposed, will provide for generation of 700,000 horsepower. The hydro-electric development on the Osage River near Bagnell, Mo., for the Union Electric Light & Power Co., provides for a dam about 2500 feet long and 140 feet high, forming a lake 125 miles long and flooding about 55,000 acres. Six 21,500-kilowatt units will be installed. The same company has preliminary permits to build two dams on the Current River, one near Van Buren, the other above Doniphan, each about 70 feet high to develop a combined capacity of 100,000 horsepower.

W. H. Meredith proposes a dam 125 feet high on the Black River at a point

with its stand-by steam plant, will produce 19,200 horsepower, was constructed on the Flint River, 14 miles southwest of Cordele. The project was financed through a county bond issue of \$1,250,000.

J. Smith Lanier, West Point, Ga., and associates, contemplate a power project with an estimated installation capacity of 45,000 horsepower on the Chattahoochee River in Chambers County, Alabama, and in Troup and Heard counties, Georgia.

The completion of the first unit of Plant Atkinson, steam-electric generating station, of 100,000 horsepower capacity, was the major construction work undertaken by the Georgia Power Co. in its \$16,000,000 construction program during 1930. The unit is located on the Chattahoochee River, 10 miles from Atlanta, and is the first of four similar units. The 60,000-kilowatt General Electric turbine generator installed in this plant and a similar unit owned by the Alabama Power Co., are described as the largest single cylinder units in the South. Work on the Furman Shoals hydro plant, started in 1929, progressed during 1930 with completion scheduled for 1931. This generating station, when put in service, will add 60,000 horsepower to the system's capacity. It is on the Oconee River, near Milledgeville, Ga. The S. Morgan Smith Co., York, Pa., furnished two vertical units of 30,500 horsepower each, mounted in concrete spiral cases and discharging through concrete elbow draft tubes. A steam plant at Brunswick was enlarged to 2,000 kilowatts. Three new primary sub-stations were built in the vicinity of Atlanta. Twenty-two high tension transmission lines, totaling 392 miles and varying in size from 11,000 to 110,000-volts were constructed. Fifty-five rural lines, totaling over 300 miles and adding nearly 2,000 customers have been put in service this year.

Kentucky

Louisville Gas & Electric Co. and Cincinnati Gas & Electric Co. arranged for interchange of electric power through construction of an 82-mile transmission line costing \$1,000,000.

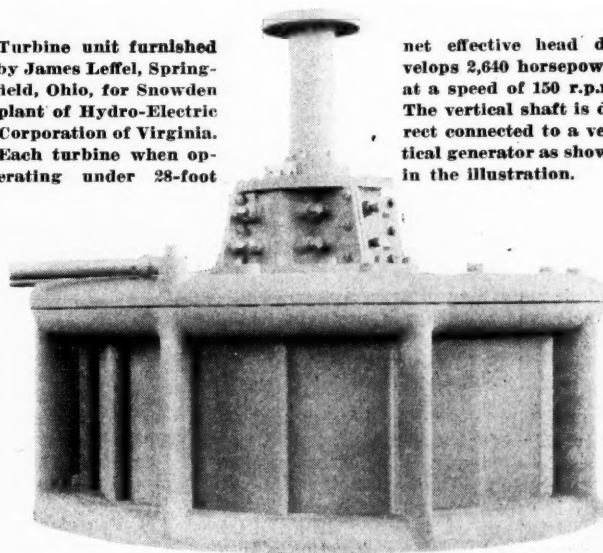
Louisiana

The major construction project of the Louisiana Power & Light Co., during 1930, was completion of a wood pole H-frame, 110,000-volt transmission line from Amite to New Orleans. Other 110,000-volt construction totaled 56 miles. About 158 miles of 33,000, 22,000, and 13,000-volt lines were built together with 125 miles of distribution system to October 1.

The \$6,000,000 steam and electric power plant of the Louisiana Steam Products, Inc., Baton Rouge, constructed to furnish steam and power requirements of the Baton Rouge refinery of the Standard Oil Co. and also to furnish by-product electricity to the transmission systems of the Baton Rouge

Turbine unit furnished by James Leffel, Springfield, Ohio, for Snowden plant of Hydro-Electric Corporation of Virginia. Each turbine when operating under 28-foot

net effective head develops 2,640 horsepower at a speed of 150 r.p.m. The vertical shaft is direct connected to a vertical generator as shown in the illustration.



near Leeper, Mo., to develop 30,000 horsepower.

The Empire District Electric Co., Joplin, proposes a 250,000 horsepower project at Table Rock, on the White River seven miles above Hollister, estimated to cost \$35,000,000. The Central Missouri Power & Water Co. proposes three projects on the Gasconade River between Jerome and Rich Fountain, each dam to be about 50 feet high, the three to create a lake approximately 100 miles long, and to develop about 100,000 horsepower.

North Carolina

The Duke Power Co., Charlotte, early in 1930 placed in operation the 150,000 horsepower steam-electric generating plant at River Bend, N. C., on the Catawba River, increasing the company's facilities to 1,103,000 horsepower.

The Virginia-Carolina Power Co., Roanoke Rapids, plans to develop 55,000 horsepower on the Roanoke River in Halifax and Northampton counties, North Carolina.

The Waterville hydro-electric plant of the Carolina Power & Light Co. is one of the outstanding new hydro projects in the South. It was built primarily to supply the company's growing load centering around Asheville. Interconnection was made with lines of the Tennessee Public Service Co., Appalachian Electric Power Co., Tennessee Electric Power Co. and Duke Power Co. The gross head, 861 feet, is obtained by a dam 180 feet high and a six-mile tunnel by-passing 12 miles of the Pigeon River. The installation comprises three vertical units mounted in cast steel scroll cases and discharging through concrete elbow draft tubes. Each of these units has a rated capacity of 49,000 horsepower under 755-foot net head, and 57,000 horsepower under 840-foot net head. Three Westinghouse generators rated at 45,000 kva. produce current at 13,800 volts.

Oklahoma

The Public Service Company of Oklahoma, Tulsa, this year undertook construction of a \$1,000,000 addition to its Weleetka power plant, the program comprising installation of a 15,000-kilowatt turbo generator and two 1,000-horsepower boilers.

The Oklahoma Gas & Electric Co. completed the Lincoln Beerbower steam-electric generating plant on the Arkansas River near White Eagle, Okla., the initial generating capacity being 15,000 kilowatts. Petroleum coke, a refinery residue is used to fire the boilers. Excellent progress is being made on the 30,000-kilowatt capacity steam-electric generating station being built at Belle Isle Lake in the northern outskirts of Oklahoma City. The fuel for the new station is natural gas. Coal burning and handling equipment may be substituted with a minimum of changes in equipment or building.

South Carolina

The Saluda electric development near Columbia, for the Associated Gas & Electric System will shortly be placed in operation. Under construction since 1927 it comprises an earth dam 208 feet high, 1½ miles long, with an 18-foot highway built across its top. Intake

towers, 30 feet in diameter and 223 feet high, draw the waters of the lake into 16-foot steel pipes or penstocks. A concrete arch conduit, 48 feet in diameter, used temporarily to divert the waters from the river so that the earth fill could be completed will ultimately accommodate two more penstocks for additional water wheel units. Initial installation consists of four units, to generate 200,000 horsepower. Ultimate installation will total 300,000 horsepower. The project is being built for the Lexington Water Power Co. by W. S. Barstow & Co. The Arundel Corporation constructed the dam. Murray and Flood are engineers and Albert S. Crane is consulting engineer.

Tennessee

Construction expenditures of the Tennessee Electric Power Co. for the current year are well ahead of outlay for similar improvements during the similar period of last year. To October 1, the company expended \$5,838,000, compared with \$3,678,000 for the like period of 1929. It is estimated that \$8,000,000 will be expended this year. Projects under way or completed during the year include 30 miles of 120,000-volt line; reconstruction of 80 miles of 120,000-volt line; 54 miles of 44,000-volt line; 93 miles of transmission line; sub-station improvement and extensions to water, ice and street railway property.

The American Cyanamid Co., through a subsidiary, proposes three large dams on the Holston River near Johnson City, power to operate new chemical plants to be established by the company. The undertaking as now contemplated will cost \$25,000,000.

In April 1930 the Calderwood plant of the Knoxville Power Co. on the little Tennessee River, in Tennessee, was placed in operation. It contains two 56,000 horsepower single vertical plate steel spiral casing turbines, to operate at a speed of 150 r. p. m. under a normal net effective head of 213 feet, including Allis-Chalmers oil pressure type of governors and each having a 16-foot diameter hydraulically operated butterfly valve at the entrance to the spiral casing. An outstanding feature is the fact that despite the large size of the turbines the butterfly valves were opened for the first time from the switchboard and the unit was started from the switchboard. Within 22 hours each unit had been operated at full load, and one of the units went into regular service without being shut down.

Robt. H. McNeill, Washington, D. C., and associates, propose a power project with an estimated installation of 220,000 horsepower at Aurora Landing on the Tennessee River.

The Mountain Power Co., Chattanooga, proposes a 55,000 horsepower project on the Tellico River in Monroe County.

Texas

The Houston Lighting & Power Co. continues to expand its Deepwater plant. Most recent installation consists of two Babcock & Wilcox boilers with a total heating surface of 15,556 square feet and a working pressure of 1450 pounds. The superheaters are Babcock & Wilcox overtake type, to give 825 degrees F. total temperature when evaporating 300,000 pounds of steam an hour.

This temperature is one of the highest in such an installation. The unit is equipped also with air heaters and economizers, the former having a total heating surface of 31,170 square feet, the latter 13,820 square feet. Besides the features of high pressure and high temperature, the furnaces are designed for firing with gas or oil, but with provision for conversion to slagtap bottoms for pulverized fuel firing. This installation also includes waterwalls installed by the Fuller-Lehigh Co.

Since January 1 the Central Power & Light Co., San Antonio, has provided service for the first time to nine communities in South and Southwest Texas, and constructed 373 miles of high power transmission lines. On January 1 the company was operating 1115 miles of rural electric lines. The outstanding project was the building of a high power transmission line from Laredo to Robstown, 153 miles. In February the company completed and placed in operation a 21,000 horsepower steam generating plant on Devils River. It operates 68 ice plants, having completed six this year as well as a cold storage plant at Harlingen.

Emery, Peck & Rockwood Co., Chicago, propose three hydro plants on the Colorado River in Texas. Hamilton Dam, about 12 miles from Burnett, and about 45 miles northwest of Austin, will be constructed initially. The head will be approximately 125 feet, with an initial installation of 20,000-kilowatts. The dam will be 2½ miles long. Reservoir will approximate 25,000 acres. Present plans call for completion of the dams downstream by the time the Hamilton project is finished—one, the Cumins site with a 35-foot head; the other the Marble Falls, with a 50-foot head. Total cost of these projects is around \$9,000,000.

Late in December the San Antonio Public Service Co. will complete installation of a steam boiler for 1400 pounds gage pressure and 810 degrees F. steam temperature, driving an 8000-kilowatt unit at the Concepcion Road plant in San Antonio. This is the first installation of steam equipment carrying so high a temperature in the state of Texas. The company in 1929 rounded out a four-year expansion program, so that this year only normal construction activities have been undertaken.

The Panhandle Power & Light Co. of Borger has completed a steam power plant using gas fuel in Wheeler County, Texas, the installation including a 6500-kilowatt turbine; also a 66,000-volt line 10½ miles long and about 50 miles of extensions in the old field territory.

The Dallas Power & Light Co. has started work on an electric generating plant in the Mountain Creek territory just west of Dallas, estimated to cost \$8,500,000.

A number of important flood control, drainage and irrigation projects under way and proposed in Texas call for development of hydro power as well. For instance, at Eagle Pass work is under way on a \$7,000,000 power plant and irrigation project for Maverick County Water Control & Improvement District No. 1.

Virginia

The Virginia Electric & Power Co., Richmond, has under way a general im-

provement program, featured by the extension of its transmission lines into rural territories.

The Hydro Electric Corporation of Virginia, Richmond, completed a plant on the James River at Snowden, near Lynchburg, with five vertical shaft, direct connected turbine units. Each turbine, when operating under 28-foot net effective head, develops 2640 horsepower. The plant is leased to the Virginia Public Service Co., Charlottesville. Turbine units were supplied by the James Leffel & Co., Springfield, Ohio; generators by the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. William C. Whitner & Co., Richmond, were the engineers.

The Virginia Public Service Co., Charlottesville, pushed work this year on a \$3,000,000 steam power plant at Brems Bluff, Va., the initial installation totaling 40,000 horsepower, which may be later increased to 140,000 horsepower and ultimately to 287,000 horsepower.

James Leffel & Co., Springfield, Ohio, is building five vertical shaft turbine units to be direct connected to generators for the Appalachian Electric Power Co., for installation at their Reusens plant. The head is being raised from 23 to 32 feet, and the dam and a part of the power house structure are being rebuilt. Three horizontal turbines are being replaced by vertical, direct-connected wheels to occupy the same space but providing for a material increase in power and efficiency. Also, two existing vertical, direct-connected units will be replaced by wheels suitable for the increased head. The five new units will develop 3620 horsepower under 32-foot head at 164 r.p.m. The Appalachian Electric Power Co. of Virginia is a subsidiary of the American Gas & Electric Co., New York. Mead & Scheidhelm, New York, are the consulting engineers.

The Appalachian Electric Power Co., Charleston, W. Va., proposes an 80,000 horsepower project on New River in Pulaski County, Va. near Radford.

West Virginia

The West Virginia Power & Transmission Co., a subsidiary of the West Penn Electric Co., announced plans some time ago for eight power projects on the Cheat and Blackwater rivers.

South Branch Power Co., Philadelphia, seeks a permit to build four dams on the South branch of the Potomac River and Great Cacapon River.

The New Kanawha Power Co., a subsidiary of the Union Carbide and Carbon Corp., New York, is building a hydro project on the New River near Hawks Nest, W. Va. A steam plant is being built at Boncar, W. Va. by the West Virginia Hydroelectric Co. Power totaling 200,000 horsepower from the two plants will be used to operate chemical works of the parent company.

The Appalachian Electric Power Co., Bluefield, proposes hydro-electric developments in West Virginia through a subsidiary, the West Virginia Power Co., Charleston. There are two projects on the New River in Summers, Mercer and Monroe counties of West Virginia extending into Giles County, Virginia. It is estimated that the two projects will cost \$23,000,000 and have an installed capacity of about 200,000 horsepower.

To Speed Inland Waterways Work

The adoption of resolutions urging Congress to increase appropriations to speed canal work and requesting citizens to aid in obtaining rights of way and thus promote employment was a feature of the recent annual convention of the Intracoastal Canal Association of Louisiana and Texas, held at New Orleans. Expectation was expressed that within 90 days all rights of way in Louisiana will be obtained for the canal and the entire route from New Orleans to the Texas line turned over to the Federal Government for construction work.

For the Federal Government, Major General T. Q. Ashburn, president of the Inland Waterways Corporation, announced that \$5,000,000 would be spent within the next few months for equipment and terminals; also he discussed plans for immediate construction of 53 barges at a cost of more than \$3,000,000.

Senator Edwin S. Broussard stated that he will ask Congress to refund about \$20,000,000 to Louisiana for construction of the Industrial canal, and will seek an increase of \$50,000,000 a year in appropriations for speeding work on the inland waterways system. Senator Broussard urged early completion of the intracoastal canal east of New Orleans through Florida, connecting with the Atlantic coast system, to give an unbroken inland waterway from New England to the southern tip of Texas.

In reviewing efforts to complete the inland waterways system, Vice-President Roy Miller said that the system included 62 projects, on which more than \$500,000,000 had been spent in past years up to last June, and that something over \$100,000,000 more will be needed to finish the work. Out of the annual appropriation of \$50,000,000, he showed, \$18,000,000 is used for maintenance, leaving \$32,000,000 for actual construction.

As a member of the Rivers and Harbors Committee in the House, Representative J. J. Mansfield of Texas felt that there are many rivers in that state which might be improved so as to extend the navigable channels far into the interior. Proposed improvement of the Trinity River, he pointed out will extend the nine-foot channel to Dallas and Fort Worth and will add about 500 miles of navigable water to the inland and national system.

"This will render the waterway navigable to a territory in Texas and Oklahoma which now is producing more than 4,000,000 bales of cotton, several million bushels of wheat and other valuable farm crops," said Mr. Mansfield.

President C. S. E. Holland of Houston was re-elected to office for life, Rene F. Clerc of New Orleans and Roy Miller

of Corpus Christi received life elections as vice-presidents and J. S. Cullinan of Houston as chairman of the advisory council. The next convention will be held at Corpus Christi.

Arkansas Hospital Bids

Little Rock, Ark.—The Arkansas Construction Commission, Joseph M. Hill, Chairman, will open bids December 15 for the first unit of the Farm Colony of the new \$3,250,000 State Hospital for Nervous Diseases, to be located in Saline County, Arkansas, near Benton. Four patients' dormitories, an assembly building, and a cafeteria and kitchen building are included. Mann, Wanger & King, Little Rock, are the architects, and Sullivan W. Jones, New York, is the consulting architect.

Railroad Expenditures

Capital expenditures of the railroads for nine months of 1930 were \$698,821,000, or a 22 per cent increase over the amount expended in the same period of 1929 and 39.7 per cent above that for the corresponding period of 1928. R. H. Aishton, Chairman of the Executive Committee of the Association of Railway Executives, has announced. The amount expended for the capital account during the 1930 nine-month period exceeds by 11.1 per cent the capital outlays made in the corresponding period of 1926, which prior to this year had been the greatest for any such period since 1923.

Of the 1930 expenditure by these Class 1 railroads, \$272,825 went for new equipment and \$425,996,000 for roadway and structures. Locomotives accounted for \$66,043,000 of the equipment expenditures, while freight car purchases amounted to \$162,356,000 and other equipment purchases represented the balance. The largest item in the roadway and structures expenditure was the \$69,340,000 for station and office facilities. For additional main track the railroads spent \$49,139,000, and for yards and sidings \$38,465,000. Heavier rail cost \$40,215,000 and additional ballast, \$9,755,000.

Expenditures so far this year for shops and engine houses have amounted to \$24,127,000; for bridges, trestles and culverts charged to the capital account the cost has amounted to \$44,384,000. For signals and interlockers, including telegraph and telephone lines, automatic train control and other similar work, the expenditure has aggregated \$28,998,000 during the nine-month period, while the balance of \$12,573,000 is represented by all other improvements.

South's Developed and Potential Power

Electric Power Consumption in 1930 Almost Matches Record Made Last Year and Far Exceeds 1928 Output—Steady Gain in Installed Capacity of Public Utility Plants.

By

HOWARD L. CLARK

PRELIMINARY figures indicate that total production of electric energy by public utility power plants of the country for the ten months ending October is holding up with the record established last year. The 12-months' output of

these plants in 1929 amounted to 97,283,000,000 kilowatt-hours. The total for the South in 1929 was 21,584,000,000 kilowatt-hours, also a record. In the South, fuel power accounted for 12,076,000,000 kilowatt-hours, and 9,507,000,000 kilowatt-hours were produced by water-power. During the first nine months of this year 15,846,000,000 kilowatt-hours of electric energy were produced by the public utility power plants of the South, as compared with the 15,908,000,000 kilowatt-hour record set in 1929. Production by months was as follows:

SOUTHERN PUBLIC UTILITY POWER OUTPUT OF ELECTRICITY.

1930	
Month	Kilowatt-Hours
January	1,954,063,000
February	1,711,228,000
March	1,898,993,000
April	1,830,103,000
May	1,735,218,000
June	1,673,036,000
July	1,690,798,000
August	1,678,436,000
September	1,674,979,000

Nine months' total.....15,846,854,000

Production during the last three months in 1929, which amounted to 5,676,000,000 kilowatt-hours, was probably higher than the total for October. November and December will be this year. Nevertheless, if the production for these three months continues at the rate of the past three months, the South in 1930 should show more than 20,800,000,000

kilowatt-hours of electricity consumed, which would mean an increase of 2,000,000,000 kilowatt-hours as compared with the consumption in 1928.

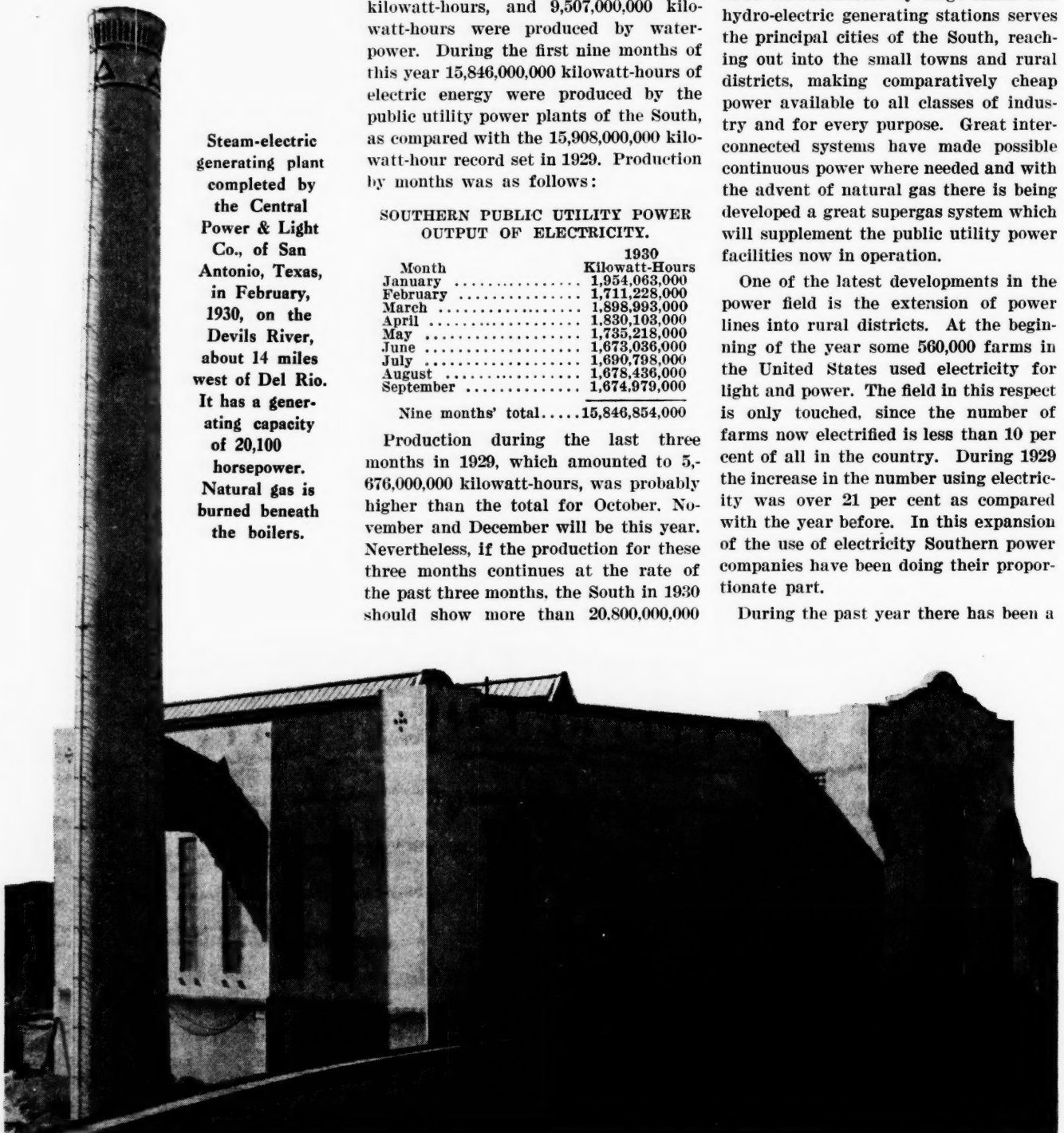
Great Interconnected Systems

A growing network of transmission lines interconnected by large steam and hydro-electric generating stations serves the principal cities of the South, reaching out into the small towns and rural districts, making comparatively cheap power available to all classes of industry and for every purpose. Great interconnected systems have made possible continuous power where needed and with the advent of natural gas there is being developed a great supergas system which will supplement the public utility power facilities now in operation.

One of the latest developments in the power field is the extension of power lines into rural districts. At the beginning of the year some 560,000 farms in the United States used electricity for light and power. The field in this respect is only touched, since the number of farms now electrified is less than 10 per cent of all in the country. During 1929 the increase in the number using electricity was over 21 per cent as compared with the year before. In this expansion of the use of electricity Southern power companies have been doing their proportionate part.

During the past year there has been a

Steam-electric generating plant completed by the Central Power & Light Co., of San Antonio, Texas, in February, 1930, on the Devils River, about 14 miles west of Del Rio. It has a generating capacity of 20,100 horsepower. Natural gas is burned beneath the boilers.



steady expansion of both hydro and steam electric generation throughout the South. Up to January 1, 1930, the capacity of developed Southern water-power plants of public utilities and primary power plants for manufacturing and miscellaneous operations totaled more than 3,897,000 horsepower. The gain in the South compared with the previous year was 117,000 horsepower, or nearly 50 per cent of the 236,000 horsepower increase for the whole country. In fact, the South in the past several years has made a larger percentage of increase than any other geographical division of the United States. It is pointed out by the Geological Survey that the country's increase in installed water-power capacity during 1929 was the smallest for several years, but in a report issued early last January it was stated that there are under construction waterpower plants of about 800,000 horsepower capacity, scheduled for completion during the year. In the proportion of distribution of developed water-power the South is shown as having steadily gained over other sections, while some geographical divisions are reporting a decline.

DISTRIBUTION OF DEVELOPED WATER POWER IN UNITED STATES, 1926-30.

Division	Percentage of total in United States				
	1926	1927	1928	1929	1930
United States	100.0	100.0	100.0	100.0	100.0
New England	13.3	13.1	12.7	12.2	11.9
Middle Atlantic	17.9	17.5	16.9	15.6	15.3
East North					
Central	8.8	8.6	8.4	8.0	7.8
West North					
Central	4.7	4.6	4.4	4.1	4.0
South Atlantic	15.2	15.7	16.0	19.1	19.2
East South					
Central	6.7	7.4	7.9	8.2	8.4
West South					
Central	.3	.3	.4	.4	.4
Mountain	8.8	8.8	9.1	8.4	8.6
Pacific	24.5	24.0	24.3	24.0	24.4

DEVELOPED SOUTHERN WATERPOWER 1908-1930 (Capacity of Plants of 100 Horsepower and over January 1.)

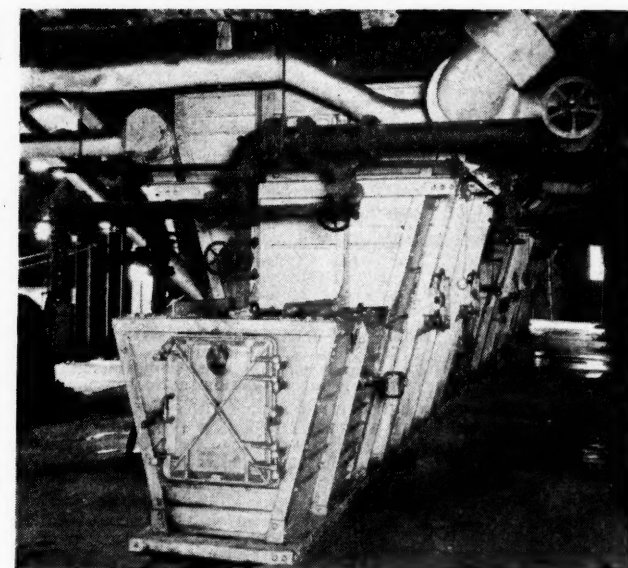
States	1908 Horsepower	1928 Horsepower	1929 Horsepower	1930 Horsepower
Alabama	161,694	646,423	799,085	845,152
Arkansas	5,868	15,550	15,680	15,530
District of Columbia	*	5,870	5,870	5,750
Florida	4,539	7,955	9,255	25,255
Georgia	166,587	463,453	543,685	473,074
Kentucky	14,156	142,255	142,255	144,805
Louisiana	1,184
Maryland	21,715	37,815	415,815	415,755
Mississippi	7,922
Missouri	10,107	20,560	20,560	22,960
North Carolina	162,284	643,768	814,000	947,000
Oklahoma	2,994	1,948	1,948	2,533
South Carolina	207,242	574,478	574,000	574,000
Tennessee	95,060	177,425	177,425	179,035
Texas	9,966	26,934	29,454	31,174
Virginia	100,123	141,471	140,239	126,192
West Virginia	20,500	91,279	91,279	89,063
Total South	991,941	2,997,184	3,780,550	3,897,278
United States	5,356,680	12,296,000	13,571,530	13,807,778

It is estimated that plants of less than 100 horsepower represent a total of 900,000 horsepower for the entire country.

*Included with Maryland.

Primary Power Plants

More than 8,500,000 horsepower is required for Southern manufacturing and mining operations. In these primary plants practically every type of power equipment is being employed—steam engines and turbines, waterwheels and mo-



View in the boiler plant of the John H. Heald Co., at Lynchburg, Va., showing a Hydro Jet system for removing ashes from three powdered fuel fired boilers.

tors, internal combustion engines and electric motors. With the rapid expansion of the natural gas industry, a sharp increase is expected in the use of this fuel for generation of energy either through steam boilers or gas-driven power units. According to the Census of 1927, (1930 figures not yet being available), installed capacity of primary power plants in Southern manufacturing was apportioned about as follows among various types of equipment:

PRIMARY POWER IN SOUTHERN MANUFACTURING

Type of Equipment	Capacity Horsepower
Steam engines	2,291,079
Steam turbines	1,111,666
Waterwheels and motors	167,726
Internal combustion engines	303,353
Electric motors run on purchased current	3,691,261

Primary power installed in manufac-

1927 was greater by 1,610,000 horsepower than the capacity in all manufacturing plants of the United States in 1890.

Natural Gas Enters

With the great expansion of natural gas pipe lines from the gas fields of the South in the past 12 months, there is being developed another great power resource to supplement the waterpower, coal, lignite and oil which is supplying energy for Southern industry. The potential waterpower of the South is approximately 9,000,000 horsepower. The South has more than 100,000 square miles of coal lands, not counting lignite bearing areas, which are estimated to contain approximately 548,425,000,000 tons of coal. More than 23,000,000,000 tons of lignite and sub-bituminous coal are estimated to be available in two Southern states. Total coal and lignite reserves of the South, therefore, amount to more than 571,515,000,000 tons. Estimated petroleum reserves in the South are 5,000,000,000 barrels, or about 55 per cent of the country's total oil resources. No estimate is available as to the South's natural gas supply, but production is running at over 1,050,000,000,000 cubic feet annually. C. B. Ames, vice-president of the Texas Company, speaking at Chicago before the American Petroleum Institute, asserted that 2,000,000,000 cubic feet of gas "is being blown in the air every day" from the nation's oil wells. This illustrates the magnitude of our gas supply as well as the frightful waste of a potential fuel.

Adequate development of these power resources has been one of the chief contributing factors in the amazing manufacturing growth of the Southern states in the past decade. In no other similar region are there found resources of such variety and volume, offering abundant heat and power for present needs and for the immediate future.

turing plants in the South in 1880 amounted to only 554,000 horsepower; increasing to 992,000 horsepower in the next ten years; to 1,910,000 horsepower in 1900; to 4,029,000 horsepower in 1910 and to 7,565,000 horsepower in 1927. This was a gain since 1910 of 3,546,000 horsepower and the installed capacity in

Power Show Exhibits

THIS partial directory of exhibitors at the National Power Show in the Grand Central Palace, New York, December 1-6, presents a cross-section of the comprehensive display of products. Virtually every type of power equipment, accessory and engineering service will be shown. Included are the following concerns, listed alphabetically, from whom exhibit details have been received up to the time of going to press.

ALLEN-SHERMAN-HOFF CO., Philadelphia—Hydrosal ash pump, a Hydrovactor and other equipment used with the Hydro-Jet system of ash removal.

AMERICAN BLOWER CORPORATION, Detroit, Mich.—No. 9 Sirocco induced draft fan; maximum capacity of 96,500 cubic feet per minute. One of series made for the Hershey Chocolate Company.

AMERICAN GAS ASSOCIATION, New York City—Heating, cooling and drying operations to demonstrate the versatility and adaptability of gas fuel. Gas appliances will be on display, most of them in actual operation, as well as a large assortment of nationally known products which have been processed by gas. Included in this exhibit is a rotary carburizing furnace, manufactured by the American Gas Furnace Co.; Kemp air-gas mixing machine made by the C. M. Kemp Manufacturing Co.; Sela's Company's air-gas mixing machine applied to internally heated soldering irons; gas-fired boiler and boiler water feed pump by the Mears-Kane-Ofeldt Co.; gas compressor of the Ensign-Reynolds Co.; unit heater by the General Gas Light Co.; water cooler made by the Electrolux Refrigerator Sales, Inc.; conditioned air equipment manufactured by the Carrier Lyle Corp.; an application of large-volume water heating by the Bryant Heater and Manufacturing Co., in connection with the Patterson-Kelly Company indirectly heated storage tank; Ideal boiler made by the American Gas Products Corp.; gas-fired forge furnace of the Surface Combustion Co., with temperature control supplied by the Wilson-Macaulen Co., Inc., and a gas-fired boiler and boiler feed pump made by the Eclipse Fuel Engineering Company.

AMERICAN PROPELLER CO., Baltimore—Paragon ventilating fans for industrial service.

AMERICAN PULLEY CO., Philadelphia—Steelsplit pulleys; pressed steel hand trucks; pressed steel shaft hangers; Spru- collite motor pulleys; V-belt sheaves; accessories and parts.

AMERICAN WATER SOFTENER CO., INC., Philadelphia—Segregated into three divisions there will be displayed filter equipment, lime-soda equipment and acid pumping equipment. A miniature filter and circulating pump will represent actual working models. An electro-magnetic proportioner, a new device for proportioning any kind of chemical or other liquid, will be part of the exhibit.

ARMSTRONG CORK & INSULATION CO., Lancaster, Pa.—Model of a cork tree, demonstrating part of the company's current educational campaign as to processes of manufacture and the unique qualities of cork. Samples of Corkostic; of sound quieting Temlok; the new fibre board insulation, as well as brick and high pressure covering for high temperature insulation will also be shown.

BABCOCK & WILCOX CO., New York City—Examples of new welding technique; refractories and refractory products. Products of the Babcock and Wilcox Tube Co., featuring iron-chrome-nickle alloy tubes and pipe; cast chrome iron pipe; iron-chrome-nickle alloy castings; steel tubing and Toncan tubing.

BAILEY METER CO., Cleveland, Ohio—Bailey boiler meters and multi-pointer gauges, including meter automatic control appliances; fluid meters; thermo-hydraulic feed water regulators; pump governors; excess pressure regulators and control valves, as well as remote control devices.

BOWSER, S. F. & CO., INC., Fort Wayne, Ind.—Educational exhibit featuring amplified photographs, showing in detail actual installations of Bowser lubrication systems.

BALDWIN-DUCKWORTH CHAIN CORP., Worcester, Mass.—Complete line of standard roller chains; steel replacement roller chains; block chains and sprockets for power transmission and conveyor work.

BROWN INSTRUMENT CO., Philadelphia—Flow meters in operation; Brown electric flow meter, manometer and regulating instruments.

BUFFALO FORGE CO., Buffalo, N. Y.—Full size rotor from an induced draft fan for installation in power plants for powdered coal operation. New Buffalo gas unit heater, single stage compressor blowers and other equipment. The Buffalo Steam Pump Company will show a new design of single stage centrifugal pump.

BUILDERS IRON FOUNDRY, Providence, R. I.—Special Venturi tube and meter for high pressures, as well as other products of the company, which include grinding and polishing machines, water and gas pipe fittings and iron castings.

CARBORUNDUM CO., Perth Amboy, N. J.—Actual reproduction of boiler furnace wall construction utilizing "Carborfrax" brick in solid, water-cooled and air-cooled walls; Carborundum brand silicon carbide and Aloxite brand electrically fused aluminum oxide refractory brick, tile, special shapes and high temperature refractory cements.

CARRIER CORPORATION, Newark, N. J.—Latest technical developments of its three divisions—The Carrier Engineering Corporation, York Heating and Ventilating Corporation and the Brunswick-Kroeschell Company. New G-3 centrifugal refrigerating machine and special air conditioner units, unit heaters, and ammonia refrigeration machines.

CENTURY ELECTRIC CO., St. Louis, Mo.—Motors covering from 1/2 to 250 horsepower. The feature of the exhibit will be a totally enclosed fan-cooled motor.

CHAPMAN VALVE MANUFACTURING CO., Indian Orchard, Mass.—Chapman chrome tungsten steel valves and fittings for high pressure, high temperature service.

COCHRANE CORPORATION, Philadelphia—Will exhibit its entire power plant equipment by means of photographs, drawings, etc., as well as several pieces of apparatus.

COMBUSTION ENGINEERING CORP., New York City—Sectional headers; welded drum; C-E return bend economizer; C-E air preheater; and C-E stoker unit for small boilers and other products.

CONSOLIDATION COAL CO., New York City—Line of bituminous coals with special emphasis on cleaned coal for general industrial use.

DIAMOND CHAIN AND MANUFACTURING CO., Indianapolis, Ind.—Two tables of running Diamond high speed roller chain drives; samples of various special attachments and models of Diamond Clark flexible couplings.

DIXON, JOSEPH, CRUCIBLE CO., Jersey City, N. J.—Graphite products applicable to the generation and transmission of power, such as flake lubricating graphite, graphite greases of all kinds, belt dressings and Dixon's industrial paint for the protection of metal surfaces.

ELECTRIC STORAGE BATTERY CO., Philadelphia—Various types of batteries used in the power plant field, featuring uses of Exide batteries.

FOSTER-WHEELER CORP., New York—Full size sections, models and samples of construction covering air heaters, superheaters, economizers, heat exchangers, pulverized fuel equipment, steam jet vacuum pumps, expansion joints and water-cooled furnace surfaces.

FULLER LEHIGH CO., of the Babcock & Wilcox organization, Fullerton, Pa.—New Fuller Lehigh Type B pulverizer.

FULTON SYLPHON CO., Knoxville, Tenn.—Sylphon temperature and pressure regulators and steam specialties, including regulators for water tanks; liquid baths; dryers; air ducts; room spaces and refrigeration; heating specialties also included.

GEARS AND FORGINGS, INC., Cleveland, Ohio—Speed reducers; reduction drives; heat-treated, case-hardened gears; drop, tool and hammered forgings.

GENERAL ELECTRIC CO., Schenectady, N. Y.—General line of G-E equipment featuring a new small mechanical-drive non-condensing steam turbine for driving pumps, fans and similar industrial equipment.

GRINNELL COMPANY, INC., Providence, R. I.—Factory type Thermolite pipe bending and welding equipment; Grinnell adjustable pipe hangers; fittings; Thermoflex traps and heating specialties and Grinnell unit cooler and liquid level control, a brand new development in refrigeration.

HARRISON - WALKER REFRACTORIES COMPANY, Pittsburgh, Pa.—First quality and second quality fire-clay brick; high alumina brick; samples of magnesite, chrome, Metakase and Duro acid-proof brick; Thermolith and Firebond high temperature cements, and other refractory products. A special feature will be a motion picture showing the manufacture of some of these refractories.

HOWELL ELECTRIC MOTORS COMPANY, Howell, Mich.—Howell Red Band motors; standard squirrel cage polyphase motor and condenser type single phase motor, as well as a fully enclosed fan cooled polyphase motor.

IRVING IRON WORKS COMPANY, Long Island City, N. Y.—Irvico products; Irvico armoring for concrete and mastic floors; unified type of reinforcement and armoring for concrete floor slab construction, etc.

MARSH & COMPANY, JAS. P., Chicago—Heating systems, units and industrial instruments; complete operating display of the Marsh weather compensating system of heating.

I-T-E CIRCUIT BREAKER COMPANY, Philadelphia—Multumite switchboard group, showing a safety steel-enclosed, three-panel switchboard mounting hand, motor and solenoid operated I-T-E air circuit breakers.

JOHNS-MANVILLE CORPORATION, New York—Complete J-M line of pipe and boiler wall insulations for the entire industrial temperature range; refractory cements and packings; J-M industrial flooring; built-up roofs and other power plant specialties and industrial building materials.

KEASBEY & MATTISON COMPANY, Ambler, Pa.—Ambler high-temperature covering which has been under surface pressure 5000 consecutive hours and a piece of "Featherweight" 85 per cent magnesia insulation which has been in service since 1893.

LINDE AIR PRODUCTS COMPANY, New York City—Power piping and equipment fabricated by oxy-acetylene welding as well as an Oxweld type W-17 welding blowpipe with cutting attachment.

LINK-BELT COMPANY, Chicago—P. I. V. variable speed transmission, just announced, in addition to their line of positive drives; silent chain; roller chain and speed reducers, as well as a pictorial exhibit of power plant coal handling equipment, elevators, conveyors, etc.

MORSE CHAIN COMPANY, Ithaca, N. Y.—Morse silent chain drive; flexible couplings; structural steel chain speed reducer; disc and ring oilers and other chain parts.

OKONITE COMPANY, New York City—Wires and cables with Okonite and varnished cambric insulation; Okonite-Callender impregnated paper-insulated cables for high tension power transmission and Hazard wires and cables.

REEVES PULLEY COMPANY, Columbus, Ind.—Automatic electrical control for any type of machine; also electric remote control for changing speeds of the Reeves transmission.

RILEY STOKER CORPORATION, Worcester, Mass.—New improved Riley Atrita unit pulverizer; Riley flare type burner, and a newly developed Riley Cyclone burner.

REPUBLIC FLOW METERS CO., Chicago—Complete line of power plant and industrial instruments, including flow meters; draft instruments; liquid level gauges; pressure gauges; pyrometers and control pyrometers.

SAUERMAN BROS., INC., Chicago—Sauerman drag scraper utilized for coal storage by power plants.

SHEPARD NILES CRANE & HOIST CORPORATION, Montour Falls, N. Y.—Close clearance hoist equipped with new design of motor-driven trolley; also photographic enlargements of the company's installations in various industries.

S K F INDUSTRIES, INC., New York City—Anti-friction S K F bearings, including a complete range of S K F transmission appliances.

STERLING ENGINE COMPANY, Buffalo, N. Y.—Viking model, 6-cylinder, 425 horsepower, 1200 revolution engine; 8-cylinder, 565 horsepower engine; Sterling Dolphin 6-cylinder engine of 180 horsepower and 225 horsepower will be shown along with smaller Sterling Petrel engines.

STOCKHAM PIPE & FITTINGS CO., Birmingham, Ala.—Stockham return bend, developed primarily for use in oil refinery tube cracking stills; samples of the Stockham line of cast iron, heavy malleable fittings and steel fittings.

SWARTOUT COMPANY, Cleveland, Ohio—Power plant equipment, featuring S. C. feed water regulator and type SL differential pressure valve for high pressure central stations; pump governors; master controls; desuperheaters; steam separators; exhaust heads; steam traps; Swartout rotary ball bearing roof ventilators.

TAYLOR INSTRUMENT COMPANIES, Rochester, N. Y.—Full line of temperature and pressure instruments for the power plant, with special emphasis given to the new Tycoos flush-mounted instruments,

which include recording thermometers; recording pressure gauges; and temperature and pressure recording regulators.

TIMKEN ROLLER BEARING CO., Canton, Ohio—A display designed to show capacity of the bearings for carrying thrust loads, as well as the reduction they effect in friction; 500-pound steel mill bearing mounted on a vertical shaft, the whole suspended weight carried by a small bearing.

THOMAS GRATE BAR COMPANY, Birmingham, Ala.—Complete working models of Thomas WSD grate equipment and a number of full size castings used in the company's installations, as well as Thomas Durable and Elliptic stationary grates in full size.

VEEDER-ROOT INCORPORATED, Hartford, Conn.—Counting devices for industrial uses, featuring new predetermining counter.

VOGT, HENRY, MACHINE CO., Louisville, Ky.—Drop forged steel valves and fittings for high pressure and temperature service.

WALWORTH COMPANY, Boston, Mass.—Demonstration of new all drop forged steel Walco pipe wrench featured by a motion picture of a series of field demonstrations.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO., East Pittsburgh, Pa.—The Stoker Department, located at Philadelphia, will exhibit an animated quarter-scale section of link-grate multiple retort stoker as applied to boilers for large public utility and industrial steam generating plants; also a motion picture of a new ash sluicing system.

YALE & TOWNE MANUFACTURING CO., Stamford, Conn.—Yale electric industrial trucks, tractors, trailers; complete overhead material-handling equipment, including Yale chain blocks and trolleys, both hand and electric; and cranes, as well as the Yale line of Stuebing hand lift trucks.

Augusta Construction Program

Construction projects of various kinds which possibly may total \$2,500,000 are reported to be scheduled for early commencement at Augusta, Ga., providing employment for many workers. Work on Lenwood Hospital will involve \$300,000 and construction work on the Fifth street and Sand Bar ferry bridges calls for equal expenditure.

Paving contracts on the Georgia side of the Savannah River are reported to call for \$500,000 and other paving work in progress and planned will require \$500,000 more. Approval by the Court of Appeals of a Richmond county bond issue would open the way for \$1,000,000 of school construction. Undertaking of a plant for municipal and commercial lighting current would call for \$1,000,000 beyond this \$2,500,000.

Army Medical Center Bids

Washington, D. C.—The Constructing Quartermaster, Army Medical Center, receives bids January 4, 1931, for additions to the Army Medical School.

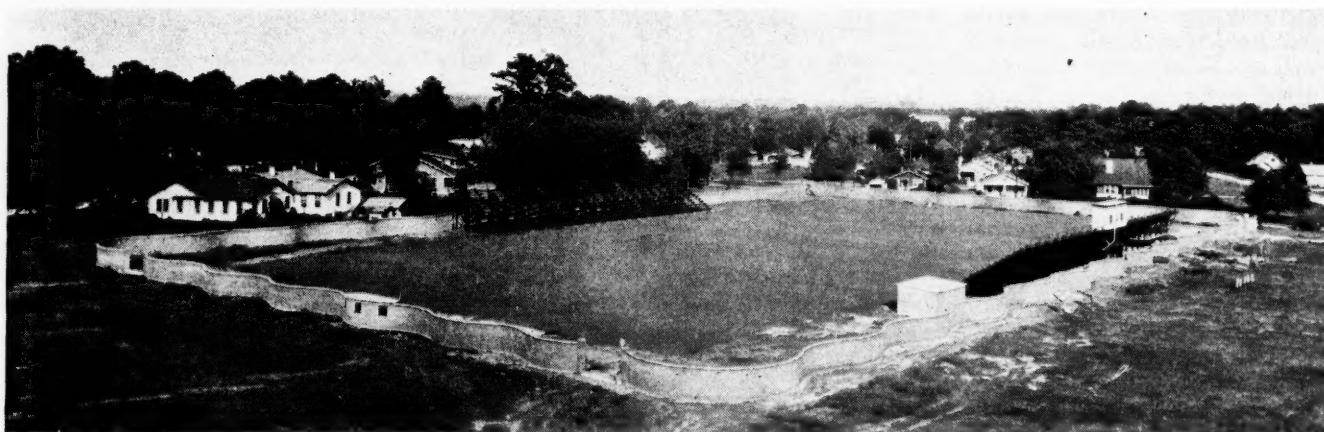
Unique Construction of Stadium Wall

Setting a new style in enclosures for athletic fields, a serpentine wall around the Richmond Academy stadium at Augusta, Ga., has been constructed as a reproduction of one built in 1795 at the University of Virginia under direction of Thomas Jefferson. It is built entirely of hard burned brick, with graceful curves pleasing to the eye. This type of construction, according to Laurence Smith, engineer of the Common Brick Manufacturers Association, Atlanta, means great economy in initial cost, since the wall is strengthened by a series of horizontal arches and, being

thus self-bracing, is safely constructed of a single thickness of brick, yet has lateral stability. The only essential difference between the Richmond Academy stadium wall and that of Jefferson is said to be in the quality of brick and mortar and in the fact that, in the former, steel reinforcing has been incorporated in the masonry at base of coping to take care of possible stresses arising from settlement of the filled land on which the wall is constructed.

In the complete wall there are approximately 12,000 square feet and the cost was 30 cents per square foot. Brick are laid in 1:3 cement mortar rein-

forced at the base with two ½-inch mild reinforcing rods, cantilever reinforcing being installed in the coping, consisting of one ½-inch mild steel rod. The wall is surmounted by two strands of barbed wire carried on strap iron hangers installed in the mortar joints. Construction procedure involved laying in the base by means of a previously constructed template. Succeeding courses of brick were lined in by eye and plumbed outside of arcs of 20-foot radius. The template was used to check the arc at several points of wall height. From 2000 to 2500 brick per day were laid by each mason, it is said.



A Serpentine Brick Enclosure for Athletic Field at Augusta, Georgia

\$3,000,000 CITY IMPROVEMENTS

Port Arthur Pushes Construction of Important Projects

Port Arthur, Tex.—Contractors handling various phases of Port Arthur's municipal construction program involving an estimated expenditure of \$3,000,000 are ahead of their building schedules. Approximately 1000 workmen are now employed. Outstanding among various improvement items under way is a seawall to protect the city from storm waters. This work will cost about \$1,750,000 in its entirety, the first unit consisting of a concrete wall and levee along the Beaumont-Port Arthur ship channel to involve an outlay of \$800,000. Construction is under the supervision of J. B. Converse & Co.

About 15 miles of dirt levee are being thrown up around the city to protect it from back water at a cost of \$125,000. This work has been completed from the ship channel below the Sabine Towing Co. to the Kansas City Southern tracks and from Lakeview end of the cement seawall, a distance inland of about one-half mile. From Houston avenue south, a steel seawall 1700 feet along the ship channel is being completed at a cost of \$300,000, while work is in progress on a \$250,000 pleasure pier and bridge. Permanent paving under way, including 3½ miles of concrete base already placed and 3 miles yet to be completed, with gravel and asphalt paving, will cost about \$109,000. The city reservoir job has been completed at a cost of \$18,000 and cement sidewalks and curbs have been laid in various city parks. Water and sewer extensions are being made at a cost of \$100,000, and the Stillwell storm sewer box, to tie in with the Thomas boulevard storm sewer for the disposition of water through the seawall has been completed about 100 feet from the pumping plant. The sewer will cost \$140,000. Seventy-five men are engaged on the Thomas boulevard storm sewer being constructed at a cost of \$170,000, the square box having been completed from Austin avenue to Stillwell avenue and from Stillwell to Richmond avenue, while two blocks of 72-inch pipe, from Stillwell toward Woodward, have been set. A number of laterals have also been completed. W. O. Bower is the city engineer.

\$2,000,000 School Program

Galveston, Texas—Buildings under the local public school program, for which \$2,000,000 bonds are available, will cost \$1,600,000. Four building sites to cost \$200,000, \$100,000 repairs and improvements to old buildings and

\$100,000 contingencies account for the remainder of the amount. Sites are yet to be selected for the West End junior high school, and for the East End and West End elementary schools for colored, while the East End junior high school is to be erected on the site of the present negro school at Tenth and Avenue J. The school board already owns the property for the elementary school planned for 51st and Avenue N, the elementary school for colored to replace the present frame building, at 35th and Avenue N and for the six-room annex and shop at the Central High School for colored pupils.

\$1,000,000 Building Completed

Rising 21 stories from its granite base at Texas Avenue and Fannin Street, the \$1,000,000 Sterling Building is the latest addition to Houston's growing skyline. The structure is built of structural steel and reinforced concrete, with its Texas Avenue and Fannin Street walls faced with Texas limestone and the other two sides surfaced with face brick. Windows throughout the building are of the Browne type, with plate glass. Three stores occupy the Texas Avenue side of the structure.

Main entrance is on Fannin Street



Sterling Building, Houston, Texas

through a bronze revolving door set in travertine and flanked on each side by bronze swinging doors. Over this entrance is a cast iron and concrete marquise. Walls of the lobby are of Sienna travertine with fluted columns and a base of Belgian block. The elevators opening into the lobby have dull golden bronze doors, with bronze panels of the same material.

Corridors in the structure are wainscotted in Botticin marble, with a Philippine mahogany molding. All doors, except those in the main lobby, are of Bagac teak. Walls and ceilings are finished in waterproof plaster of light cream shade. Terrazzo is used for all floors. Four high speed, signal-controlled elevators provide transportation to each floor.

The building was designed by Wyatt C. Hedrick, Inc., Houston and Fort Worth architects. The Bace Construction Co., Houston, was the contractor. Management of the structure is by the Sterling Properties, Houston.

Among the firms connected with the project were:

Electric work and fixtures—Jacobe Bros. Electric Co., Houston
Face stone—Del Rio Stone Co., Houston
Ventilating and heating equipment—Dixie Heating and Ventilation Co., Houston
Structural steel—Houston Structural Steel Co., Houston
Plastering—Valley Construction Co., Houston
Inside Venetian blinds—Consolidated Venetian Blind Co., Houston
Face brick and hollow tile—Southern Brick & Tile Co., Houston
Marble—Richey, Browne & Donald, Inc., Brooklyn, N. Y., and Vermont Marble Co. of Texas, Houston
Elevators—Otis Elevator Co., Houston
Terrazzo flooring—American-Venetian Marble Co., Houston
Ornamental iron and steel—Weaver Ornamental Iron Works, Dallas
Elevator enclosures—Art Metal Construction Co., Jamestown, N. Y.
Glass—Pittsburgh Plate Glass Co., Houston
Sand and gravel—Houston Building & Material Co., Houston
Paints and varnishes—Cook Paint & Varnish Co., Houston
Sectional partitions—Burge Manufacturing Co., Houston
Reinforced steel in floor beams—Alamo Iron Works, Houston.

World's Largest Luggage Plant Covers 23 Acres

In an article published November 6 referring to Petersburg, Va., as the world's greatest center for luggage manufacturing, there was an error in the figures showing the floor space of the Seward Trunk & Bag Company, which is the largest plant of its kind in the world. The total should have read 23 acres instead of 23,000 acres. The figures were so obviously out of line that the mistake should have been immediately detected.

We are glad to make the correction, for the interest shown by our readers in calling attention to the matter illustrates how closely the MANUFACTURERS RECORD is read.

Quickened Rail Service for Florida

Time of Delivery for Perishable Commodities to Eastern and Western Markets Cut 24 Hours—Operating Fastest Passenger Schedule on Record

By

C. McD. DAVIS,

Vice-President,

Atlantic Coast Line Railroad Company,
Wilmington, N. C.

SECOND only in importance to the removal of the Mediterranean fruit fly quarantine, so far as Florida fruit and vegetable producers are concerned, was the announcement made early this fall that the Atlantic Coast Line and the Florida East Coast and their connections would reduce the time required for delivery of perishable commodities to principal Eastern and Western markets by 24 hours. This quickened service will make possible fourth-morning deliveries at points where fifth-morning deliveries have previously been made, with corresponding reduction at other destinations. Following the example set by the Coast Line, other railroads serving Florida have since made somewhat similar reductions in schedules.

This announcement gave assurance that Florida citrus fruits and vegetables would have even greater advantages than heretofore over similar commodities produced on the Pacific Coast because they will reach Chicago four days earlier and New York six days earlier than California fruit loaded the same day.

Stated in another way, Florida citrus fruit destined for Chicago can remain on the trees four days longer than California fruit and thereby increase in juiciness and sugar content, and arrive in Chicago at the same time. Fruit destined for New York can stay on trees six days longer. Florida growers can profit largely also by their ability to reach points where special demands exist, more quickly than growers in competing sections.

The quickened service applies to pro-

ducing sections in extreme south Florida, including such places as Collier City, Everglades, Deep Lake and other shipping points that have been opened by the extension in recent years of the lines of the Atlantic Coast Line to the rich sections on the south and west of Lake Okeechobee as well as points served by the Florida East Coast Railway. Cooperation of connecting lines has resulted in extending the reduction of schedules as far west as Salt Lake City and as far east as Boston.

Improved Service Result of Extensive Betterments

The improved service has been made possible largely by the extensive program of additions and betterments put into effect by the Atlantic Coast Line in recent years at a cost of more than \$100,000,000. The Coast Line now has a double-tracked line between Richmond and Jacksonville, protected by automatic block signals, and between Richmond and Florence, S. C., by automatic train control. A considerable amount of double track has been laid in Florida, and extensive installations of automatic signals are under way and nearing completion in that state at the present time.

The Atlantic Coast Line for a number of years has been replacing lighter rail with 100-pound rail, and has placed additional ballast under the track, using

large quantities of crushed stone and slag. These improvements with ample modern equipment especially adapted to the needs of producers along its rails, together with enlarged yards and terminals and a personnel familiar through long experience with requirements of perishable traffic, have made possible the speeding up of this traffic both on the line and through the terminal.

The 24-hour reduction in time is generally regarded by Florida shippers as a most important and valuable aid in marketing Florida perishables and has given ground for belief that this year's crop will be marketed to better advantage than any in the past.

Operates Faster Passenger Schedule

Several years ago the Coast Line began to shorten the time of its passenger trains and is continuing this improvement. Effective December 1, its Havana Special will cover the distance between New York and Jacksonville in 22 hours and 30 minutes, and it will require only 37 hours between New York and Key West, the fastest schedule on record between these points and amply justifying its reputation as the fastest train in the world for the distance covered. The schedule of the Florida Special, which on December 1 will begin its 44th consecutive season, has been reduced to 22 hours and 35 minutes, while the schedules of the Miamian and the Gulf Coast Limited, other crack winter tourist trains will be only 22 hours and 40 minutes.

Processed Nuts

The Bureau of the Census reports that the total value (at f. o. b. factory prices) of processed nuts shipped or delivered in 1929 as reported by establishments engaged primarily in processing nuts amounted to 489,950,891 pounds, valued at \$47,022,242, representing an increase of 3.4 per cent in quantity and a decrease of 10.4 per cent in value, as compared with 474,027,685 pounds valued at \$52,451,196 for 1927, the last preceding census year.

The 1929 total is made up as follows: Peanuts processed, 404,728,529 pounds,

valued at \$28,819,491; walnuts, 61,147,295 pounds, \$9,685,719; other nuts (almonds, pecans, Brazil nuts, etc.), 24,075,067 pounds, \$8,516,832.

In addition, nuts are processed to a considerable extent as a secondary activity by establishments engaged primarily in other industries. The value of nuts thus processed outside the industry in 1927 was \$8,161,672, an amount equal to 15.6 per cent of the total value of this class of commodities produced within the industry. The corresponding value for 1929 has not been ascertained but will be given in the final report of the present census.

Tung Oil Association

Cairo, Ga.—As the culmination of last year's distribution of 7000 pounds of tung seeds by the Grady County Chamber of Commerce, nearly 100 farmers of this section recently formed an association of tung oil growers, said to be the first in America. Among the objects of the organization, of which Dr. C. A. Van Duzee was elected president and J. M. Hughes, secretary, is the installation of a co-operative crushing plant when the groves reach a commercial bearing stage. This is expected to be in about three years.

U. S. STEEL SUBSIDIARY EXPANDS IN BIRMING- HAM SECTION

Tennessee Coal, Iron and Railroad Co.

Rounding Out Projects

Birmingham, Ala.—The developmental program placed under way early this year by the Tennessee Coal, Iron and Railroad Co., Birmingham, involves alterations and additions to sheet mills; installation of a 42-inch universal-plate and sheet strip mill; addition of one soaking pit; addition of one 150-ton stationary open-hearth furnace, and improvement of the shipping facilities of the 45-inch blooming mill.

At the time this development program was contemplated, the sheet mills consisted of 11 finishing stands, seven roughing stands and one jobbing mill, all provided with old-style sheet and continuous pair furnaces. Sheets were rolled from sheet bar furnished from a 21-inch continuous mill located at the Fairfield Steel Works. Additional mills and continuous furnaces for both old and new mills, using strip instead

of sheet bar for a high percentage of the products rolled, were proposed to increase the capacity of these mills. To care for this additional tonnage, auxiliary finishing equipment and buildings have been added to the existing plant.

A 42-inch universal-plate mill is being installed at the Fairfield Steel Works to provide suitable strip for the sheet mills and also to provide a certain tonnage of universal plate. This mill is provided with in-and-out reheating furnaces and at present will be furnished with slabs from the existing 45-inch blooming mill.

One additional soaking pit of the direct-fired type has been installed to supplement the existing heating capacity of the 45-inch blooming mill. Heating facilities for this blooming mill had consisted of four soaking pits of four holes, each direct-fired without checkers. The pits use by-product coke-oven gas as fuel.

To balance the ingot capacity at the Fairfield Steel Works, it was necessary to install one additional 150-ton stationary open-hearth furnace, which is similar in design to the eight existing furnaces. Steel is produced at these

furnaces by the straight open-hearth process requiring from 10 to 12 hours per heat. The hot metal from the blast furnaces is poured direct into the furnaces by a 125-ton floor crane. Scrap iron and the steel discards from the several mills are also used. Design of these furnaces allows the burning of tar, oil and coke-oven gas, or a combination of gas and tar or oil.

The layout at the 45-inch blooming mills is such that the 21-inch continuous mill is fed direct from the bloomer. Due to this mill's increased tonnage, which is transferred by slab cars to the 42-inch universal mill, it was necessary to materially improve the shipping facilities. The improvement is being accomplished by installation of a transfer and loading table, a device in which the transfer table is on a radius making a 90-degree turn, the table rolls being individually driven. Material is delivered from the transfer table to a tilting table with a superimposed pusher. By use of this tilter and pusher, the slabs can be easily loaded to any reasonable height on special slab cars placed on a track paralleling the center line of the blooming-mill tables.

Example of Modern Factory Building Design

THE new plant of Wheatley Brothers, manufacturers of brass foundry products, pipeline supplies, and general machine work, at Sand Springs, Okla., is a thing of beauty—another example of the fact that industry is drawing away from the commonplace. Modernistic in design, it is built of yellow brick and it is an attractive as well as a valuable addition to the city's industries. It is located at the bend of a main highway and, therefore, stands out conspicuously. It is served with trackage from the Sand Springs Railroad, and on two sides has ample parking space for sev-

eral hundred vehicles. Interior details received no less attention than the exterior. The handsomely appointed offices give no indication that the structure houses a brass foundry and machine works. Believing that the satisfied worker is an efficient employee, the company has provided every convenience for workers' comfort. Adjoining the offices is a spacious and commodious club room that reminds one of the lobby and rest room of a large theatre or hotel. An emergency bedroom and restroom, a room set aside for research work, all handsomely decorated, are included in the layout. Large dressingrooms and

numerous running ice-water fountains are among the other features. Much thought was given to providing the maximum light and working space in all departments.

The company, of which Thomas Wheatley is president, was started in Tulsa, about five years ago, and has grown from a small shop employing five people to a modern industrial unit with a payroll of 85. The company specializes in the manufacture of pipe line equipment, the principal products being brass and steel fittings which go into the cast iron checks, gates and valves which are received at the plant in the rough.



Attractive New Plant at Sand Springs, Okla., for Wheatley Brothers, Manufacturers of Pipeline Supplies, Brass Foundry Products and General Machine Work.

What the Future Has in Store*

By

CHARLES F. ABBOTT,
New York.

If we could but visualize the next five or ten year period we would undoubtedly witness the greatest period of industrial development in all history.

The electrical industry is on the verge of revolutionizing the whole process of manufacturing and distributing electricity.

The natural gas industry with all of its vast pipe lines is bringing natural gas into the remote Eastern cities and towns.

The chemical industry by applied research is bringing into being many new industries as new processes are developed.

The coal industry is making preparations to utilize waste materials by converting them into electrical energy at the mines.

The railroad systems are engaged in electrification programs.

The aviation industry is in its infancy. It may, and probably will accelerate the whole system of transportation.

Steel frame houses are now being manufactured by mass production methods and delivered on your lot by truck the day following receipt of your order. As the family increases, annexes can be ordered to keep pace with expansion. When set in place it is all ready to occupy with all accessories included. The price is reasonable, ranging from \$1200 to \$3000, with easy monthly payments.

The increasing demand for automobile and bus transportation is calling for more and greater bridges. There will be a great many erected during the coming year. Many thousand miles of new and improved highways will be contracted.

The proposed irrigation projects, including dams, will call for great quantities of steel, cement and other building materials.

The Mississippi Valley Flood Control project will move forward and utilize large quantities of building materials and many men. Instead of spreading this undertaking out over a period of ten or more years, the time should now be reduced, putting ten times as much money and men to work. There is more to be gained than in spreading the work out over a period of ten years or more.

Our architects, structural engineers and steel constructors will take the lead in the future period of greater prosperity. They have already accomplished what the whole world unanimously admits is the greatest American artistic achievement of the century—the Amer-

ican Skyscraper. This is not my opinion, but the world-wide verdict of those qualified to know.

It is the most outstanding of all examples of American ingenuity and progress. The steel skyscraper not only made all other large buildings obsolete, but is turning obsolescence into economy instead of waste.

It is not the steel that becomes obsolete. It is always the design of the interior and exterior equipment, due to increased demand for better service in buildings. The size of the building may also become obsolete because of the increased land valuation, which calls for great income.

An analysis conducted by the American Institute of Steel Construction to determine the economic height of a building using land valued at \$200 per square foot as a basis was found to be 63 stories. As land values increase over this amount, buildings must go higher in order to obtain the maximum economic return.

Buildings one hundred stories high have already been designed and will undoubtedly be erected. By consolidating real estate holdings in an entire city block, ground areas for foundations may be obtained and buildings even 200 stories high would become practical. Better design, light and air conditions would be obtained and without further traffic congestion. Buildings without windows and with better light and air conditions are now possible.

Other types with all-steel outer walls are being perfected and may have an important influence on the design of future buildings.

Old buildings must give way to the new. Obsolescence is exacting a high premium. A building of 12 or even 20 stories erected 20 years ago is now out of date. In New York a building becomes obsolete in about 15 years. It is this tearing down, remodeling or building new process that is paying a high tribute of obsolescence.

The future will demand intensive merchandising as applied to all products. Now is the time to begin to think about manufacturing a quality product, trademark it and then advertise it intelligently. Even now we observe the gasoline industry using trade names on gasoline and advertising them nationally. The service stations are selling automobile tires and under their own trade names.

In the construction industry, the merchandising idea will be utilized. New ideas, plans and methods will force the merchandising and sale of entire buildings instead of merely selling parts of buildings as in the past.

We are becoming more conscious of design and artistry even in bridges. In many cities and towns the public insists upon the removal of some of the horrors that were erected in the days gone by. A bridge can be a beautiful civic improvement. If built of steel, it is easy to replace with a new steel bridge of beautiful design and one which will, in turn, be easy to displace if we rise to still greater artistic levels. Obsolete steel bridges may be salvaged, sold and re-erected.

We should visualize the construction industry hard at work with merchandising methods, using advertising to make the people sensitive to the fine things of life, to good houses and artistic furnishings.

When that day comes, and I believe it will come in my time, the volume of business for us all will be positively stupendous, and so will the volume of income.

Advertising has proved the best means of stimulating desire so far as an industry is concerned. So long as the elements used are truth, skill and a sound knowledge of market conditions, advertising will continue to advance industry through the bewildering mazes of the transition it is undergoing and place it firmly before us.

The industry which grasps the full meaning of the future trends and adopts its policies to promote increased consumption will inevitably outstrip those who are unable to recognize the change that confronts them, or who fail to place the proper valuation upon public opinion as the controlling factor in our industrial progress.

\$1,000,000 Orchid Collection

Production of orchids on almost a quantity basis has been brought about at New Orleans by E. A. Farley, whose Gentilly greenhouses contain a collection of orchids said to be worth more than \$1,000,000. From thousands of plants Mr. Farley ships choice specimens to New York, Boston, Washington and other cities. New and rare varieties of orchids have been developed, some of the plants costing \$1000 to \$4000. Care is taken to classify each plant correctly, and for the rarer and experimental varieties a regular blueprint location system is maintained.

*Extract of an address on cooperation and more scientific management by Mr. Abbott, Executive Director of the American Institute of Steel Construction, before the Illinois Manufacturers Association.

LETTERS FROM OUR READERS

Water Wheel Efficiency Increased

H. H. White,
Sales Engineer.

Atlanta, Georgia.

Editor Manufacturers Record:

In your editorial on "Mississippi Flood Control" is the statement: "Furthermore, in recent years the increased efficiency of steam-generated power plants has been so notable that water power no longer has the advantage of cheapness it formerly held."

First, I agree that the steam power people have made wonderful strides, and power by steam is now greatly reduced, but the designers of water wheels have, too, been wide awake and where a few years ago 80 per cent efficiency was considered good, now we are getting way above 90 per cent efficiency.

A leading technical paper recently stated:

"Depletion of hydro-electric power during the current drought is costing the power industry millions of dollars in auxiliary fuel consumption according to estimates prepared from U. S. Geological Survey data. In May of this year the deficiency of hydro output was roughly 250,000,000 k.w. hours. Fuel costs to supply this shortage totaled nearly \$1,000,000."

One million dollars divided by 250,000,000 k.w. hours shows a cost per k.w. hour for steam power of around 4 mills. Compare that to the cost of hydro-electric power which the Government contracted for from Boulder Dam. I again quote from the same technical paper: "The rate to be paid by the two lessees, the city of Los Angeles and the Edison Company is 1.63 mills per k.w. hour for primary power and 1/2 mill for secondary power."

For years I have been trying to collect all data possible on cost of power by different means and so far figures given me show that the lowest cost of any water power is around nine tenths of one mill and the lowest cost on any kind of steam plant is around 2.5 mills. Only this week I heard of a record having been made in one of the large steam plants here in the South where they made power by steam for only about 3.6 mills per k.w. hour. But again compare that to water power bought by the power companies from Government owned plants at less than half of that, or 1.63 mills.

H. H. WHITE.

[In the editorial mentioned by Mr. White we pointed out the futility of following Mayor Curley's suggestion to appropriate one billion dollars for immediate development of the Mississippi River basin as a means of aiding the present unemployment situation. It would be many months before even the engineering details could be settled upon, not to mention other factors which would have to be carefully studied. In any consideration of the relative cheapness of steam and waterpower plants, many factors are involved. We fully

realize that this country will need all the power that can be produced, whether by steam or water, and that there will always be a place for each type of plant.—Editor MANUFACTURERS RECORD.]

Defends the Retailer

F. H. Littrell & Co., Inc.
St. Petersburg, Fla.

Editor Manufacturers Record:

I have read your cover-page editorial of November 13. What you say about the practice of merchants allowing their stocks to become depleted I am sure is true in many cases, but there are some very good reasons for it, and generally speaking, I do not think the merchant can be blamed for it.

Since the business depression started, prices on manufactured articles of every sort have been steadily declining on account of manufacturers slashing prices in an effort to force sales and to turn their inventories into cash; the demand has been extremely poor, making it necessary for the merchant to reduce expenses in every possible way; he also has suffered heavy losses on his inventory. The buying public for some time seems to have had an idea that it can buy almost anything for almost any old price, and it has been pretty successful in doing this. Again, retail merchants have lost so much money that many of them are in bad shape financially, with their credit impaired, and they are not in position to lay in large stocks of merchandise if they were so inclined.

Under the circumstances, no merchant, if he is a good business man, is going to keep his stock up to what it should be. If he purchases a bill of goods this week, about the time he gets it in he finds that his competitor has purchased the same thing at quite a reduction in price, and he is forced to sell his stock at a loss. I think the manufacturers are largely to blame for this condition. If they would stabilize their prices so the retail merchant would know that his competitor is not going to be able to buy cheaper or that prices were not going to drop to a lower level, it would give the retail merchant an incentive to build up his stock to normal.

To my mind, when the manufacturers tie a can to these so-called efficiency experts they have around and stop manufacturing more goods than the public can consume and stop forcing their products on the market by the ruinous slashing of prices, the condition to which you call attention will disappear altogether, and confidence will be re-established in the minds of the retail merchants and the buying public as well.

F. H. LITRELL.

[Mr. Littrell presents a plausible defense for the retail merchant who has carried an insufficient stock in the period of depression. Analysis of the situation, however, corroborates the position assumed by the MANUFACTURERS RECORD in the cover-page editorial, "Depleted Shelves a Business Deterrent," to which reference is made. This shortage of retail stocks Mr. Littrell attributes to

successive cuts in prices by manufacturers, which has impelled merchants to buy sparingly in anticipation of further cuts, and to losses by merchants on their inventories. The general policy to wait for prices to reach their lowest level has intensified the situation.

As to manufacturers stabilizing their prices, they have endeavored to do so as far as they can go under the Sherman law.

That the retail merchant stood to lose money on goods purchased at peak prices, there can be no question. But no reasonable retail merchant, we are persuaded, will plead that he alone of all business groups should be exempt from a general deflation loss which has permeated virtually every industry and business house in the country.

All sincere views on business conditions, such as Mr. Littrell's, are welcomed by the MANUFACTURERS RECORD. But in this case we see no reason to recede from our statement that "by permitting their stocks to become depleted, many merchants have unwittingly contributed to the hampering of trade activity."—Editor MANUFACTURERS RECORD.]

Gadsden's Diversified Industries

Edward A. Fisher, Jr., & Co.,
Mortgage Bankers.

Gadsden, Ala.

Editor Manufacturers Record:

An editorial in your splendid publication, "Money for Building," has been called to my attention. I would like to invite your attention to the progress made at this point during the past few years. The Gulf States Steel Company began a \$20,000,000 expansion program in 1928, and they have just completed and placed in operation a new blooming mill, sheet mill and plate mill, and increased their ingot capacity. Construction of a large tube mill and other manufacturing departments is likely, under certain possible developments.

In 1929, the Goodyear Tire & Rubber Company of Akron, Ohio, selected this city for their Southern plant, with a program calling for an expenditure of \$31,000,000. Of this, \$7,500,000 has already been spent and the first unit is in operation, the balance to be expended as business conditions warrant. Besides these two large industries, we have 20 other textile, cast iron pipe, stove, tool and woodworking plants, all of which have been expanding and making improvements during a time when the rest of the country has been going through a depression and readjustment. You can see that the diversification of manufacture is very satisfactory and that this city is in no sense dependent on any one or two classes of industry.

Another striking factor is that the trade area which rightly belongs to the city covers 3000 and more square miles, or one-seventeenth of Alabama. Gadsden has natural resources of iron, coal, etc., and has demonstrated its logical position as a trading center for 14,000 farms and 110 centers and 150,000 outside people.

EDWARD A. FISHER, JR., President.

IRON, STEEL AND METAL MARKET

Steel Trade Outlook Somewhat More Hopeful

Pittsburgh, November 24—[Special.]—Steel production last week was practically unchanged from the week before, suggesting a steady volume of business and in contrast with the almost continuous decline since the end of August.

Just of late there have been considerably more hopeful expressions in the steel trade, attributable partly to observation of business conditions generally and partly to observation of individual conditions among steel consumers. As to the latter, there has lately been such rigid curtailment of stocks that it may easily be seen there will be less than usual seasonal decrease in demand as the annual inventory date, January 1, is approached.

As to general business, there have lately been some signs that the recession is nearly if not quite completed. The latest figures on bank debits fail to show the increasing losses from previous years that had been observed for months. Freight car loadings also make a better showing. Four of the last five weeks reported on have shown decreases from the preceding week, but such decreases are seasonal, and not as great as the average in other years. Specifically, the four weeks through November 8 showed 16.18 per cent decrease from the five-year average for the same weeks, while the preceding four weeks had shown 17.05 per cent decreases. In the first four months of this year the decreases had averaged 6 to 7 per cent, decreases continuing to be more pronounced until recently.

All the steel consuming lines are now dull with exception of fabricated structural steel, which holds up well by reason chiefly of there being much public work, in bridges, subways, viaducts, etc. Line pipe production is at less than half capacity and all but a very few orders will soon be completed. For five or six months production was at capacity. The new season's prospects are problematical, but there are many promising projects. Agricultural implement factories are at rather a low rate, better than in the summer, however, and chances are there will be considerably more activity early in the new year. Automobile production has been at a low rate for some time, taking rather little steel, and no one seems ready to venture a prediction as to what will occur next year.

Steel ingot production has lately been at about half way between 40 and 45 per cent of total capacity. Finishing mill operations have averaged still less, rela-

tive to the respective capacities, as there is always an excess of finishing over steel making capacity, to give the industry flexibility in keeping with varying relative demands for different products.

There being no likelihood of steel demand so increasing in the visible future in a manner to make steel prices go up automatically, producers are addressing themselves seriously to the matter of endeavoring to obtain something like a profit by getting prices commensurate with costs. In strips, sheets and the common wire products prices have lately been below full cost of production. Bars, shapes and plates were at a fair price, 1.60c, as the open market, but there was deep and irregular cutting on large lots, particularly in connection with fabricated structural steel jobs. As already reported, the Carnegie Steel Company announced a firm stand on 1.60c as minimum, and other producers have been adopting that position. The market has not had time for a crucial test but strong hopes are entertained that it will be stabilized. Producers of other finished steel products have hopes of stabilizing their prices and then effecting some advances for the new year, but they have a difficult problem. Tin plate and rails are quite profitable but production is seasonally light and the railroads in general have been sluggish as to placing rail orders for the new year.

Copper Domination Continues in Metal Markets

New York, November 24—[Special.]—Copper continues to dominate the situation in the metals. When copper business has been booming, the other metals have been active; when copper activity ceased the other metals have turned dull. The price of copper was nominally 12 cents per pound as the week drew to a close, but business had become very dull. By Wednesday export sales were nil compared with 9000 tons the previous Saturday. Domestic buying was at a standstill. Dealers and first-hands had offered the metal as low as 10½c without attracting buying interest. Hence the copper market has been very irregular and confused and many blame producers for having put such a sharp rise into effect. From Wednesday to Saturday of the previous week the price of copper had been lifted 25 per cent.

Lead demand was very active the last three days of the previous week and the first day of this week. Then October statistics appeared which revealed a gain in surplus stocks of nearly 11,000 tons,

bringing the total to over 84,000 tons, equivalent to nearly two months consumption. However producers in southeastern Missouri have announced a reduction of production by 20 per cent, starting November 1, which should make other statistics of this year more favorable. Lead prices have been unchanged all week at 5.10c per pound, New York, and 4.95c, East St. Louis.

Zinc prices have been sagging slowly, reaching 4.30c per pound early in the week and 4.25c later. Demand has been quiet. Tin has been selling most of the week at around 26 cents per pound.

Prospects of the steel industry are more promising though operations continue to sag slowly and prices so far have not risen. However the steel makers are taking a firmer stand and some price advances are under contemplation. The automobile industry is in much better shape and a brisk purchasing of raw materials is expected early next year. It is reported the railroads will be inquiring for as many as 50,000 freight cars within the next few months because of a new financing plan which allows of better credit extensions.

The silver market has been quite steady at around 36c per ounce. Quick-silver is a bit weaker, having sold as low as \$106 per flask of 76 pounds. Antimony has become more active and a trifle higher in price, with some sales being made at 7¼c per pound, duty paid.

Export sales of copper of 9000 tons a week ago Saturday were the largest for a day in a year and perhaps the highest for a Saturday on record. From that time sales fell off abruptly since consumers apparently lost confidence in the market. Copper prices broke sharply each day last week on the London Metal Exchange, which showed a lack of confidence in present levels.

On two days the price of the red metal was lifted a cent per pound per day, whereas in the days before copper trade associations a rise of ¼c in one day was regarded as large. Considerable criticism has been directed against the copper producers for the rapidity of the rise and it has been whispered about that many producers themselves have been against so sharp an advance, yet it is a point of honor among producers that they follow the leader in marking up the price.

It is likely to be a dull market in copper over the rest of the year since American consumers have covered on their needs for four to five months ahead, according to reports. Foreign consumers, however, have not bought so far ahead and their patronage is being

counted on heavily over the rest of the year.

French copper consumers sent a formal protest to Copper Exporters against the limiting of daily sales to specified quotas. This limitation appeared when the market was at levels from 9½ to 11c; thereafter restrictions were withdrawn. Though any answer made has not been announced, it is assumed the export association takes the attitude that its course has been just; that it has sold to domestic consumers just as reluctantly and that it is a seller's privilege to reject sales, especially when the price is below or near cost of production.

Lead producers are being congratulated on holding the market so steady. At the close of the previous week they were apparently justified in advancing prices since London prices had risen sharply, since sales here were good and since copper was advancing.

Tin, a highly speculative metal, was naturally an excited market when copper was advancing. Buying proved to be very heavy at that time and prices were rising, but a sharp reaction in business and prices took place more recently.

World production of copper in October was 152,544 tons, an increase of 139 tons over September, but October was a longer month. This was the largest production since January. On the basis of the October production the agreed curtailment of 23,650 tons monthly will amount to 15½ per cent.

No Material Change in Pig Iron Market

Birmingham, Ala., November 24—[Special.]—Southern furnace interests are filling orders promptly and expecting improved conditions. There is a steady flow of small tonnage contracts with specifications for early delivery. The home base price holds firm, \$14, No. 2 foundry. Shipments outside the territory are picking up some, not only with small-lot orders but also part of the big order from the American Radiator Corporation. That order and another from a different radiator concern are practically the only business so far reported for the first three months of the coming year. Several steady melters report business as easing up some but anticipate improvement on the turn of the year. Cast iron pressure pipe shops are shipping fairly well but lettings are coming in slowly and aggregate tonnage is far from expectations. Foundries and machine shops are buying in smaller tonnages but more frequently and look confidently to a turn for the better.

Shipments of pig iron to points on the Atlantic Coast promise to continue. The big radiator order has now been dis-

counted. An order for 1000 tons is reported placed in the South by another manufacturer of radiation while other interests have shown interest, though in tonnages of a hundred or two tons at a time.

Indications point to a continuation of the same method of iron buying during the first quarter of the coming year. Reduction of surplus stock will be quite material but will not be complete by the end of the quarter. Eight blast furnaces are producing foundry iron. Two are on basic.

The steel mart is unchanged. Accumulation of orders for rail, accessories and cars will be necessary before there is warrant for resumption of the rail mill and other works in the district, including the car works.

Sheet mills continue to produce steadily, with a splendid demand for the products. The new mill of the Gulf States Steel Company has not yet been able to stock up sheet in the warehouse. Plate also is in fairly good demand. Lagging

is reported in wire and wire products, and other shapes are suffering. Estimate of operation schedules in the district is around 43 per cent capacity and this is believed to be very liberal.

The scrap iron and steel market is still quiet with prices weak and uncertain.

Coke is in fairly good demand, independent producers having but few ovens out of commission. Alabama coke is still moving, though in small quantities, to Cuba, Mexico and the California coast.

PIG IRON QUOTATIONS.

No. 2 foundry, 1.75 to 2.25 per cent silicon, f. o. b. furnaces, \$14.00; No. 1 foundry, 2.25 to 2.75 per cent silicon, \$14.50; iron of 2.75 to 3.25 per cent silicon, \$15.00; iron of 3.25 to 3.75 per cent silicon, \$15.50.

OLD MATERIAL.

Old steel axles	\$14.00 to	\$15.00
Old iron axles	15.00 to	16.00
Old steel rails	12.00 to	12.50
Heavy melting steel.....	10.00 to	11.00
No. 1 cast.....	9.50 to	10.50
Stove plate.....	8.50 to	9.50
No. 1 railroad wrought....	9.50 to	10.00
Old car wheels	10.00 to	11.00
Old tramcar wheels	10.00 to	11.00
Machine shop turnings.....	7.50 to	8.00
Cast-iron borings	7.50 to	8.00
Cast-iron borings (chem.)..	12.50 to	13.00
Re-rolling rails	12.50 to	13.00

Carbon Treatment for Water Supplies

Of particular interest in a season of general water shortage is a bulletin on the chemical and mechanical utilization of activated carbon in water purification, by A. S. Behrman, chemical director of the International Filter Company, Chicago, and H. B. Crane, principal assistant engineer of that company. Progress is reported in development of principles for the proper design and operation of equipment for using the carbon, on results from actual installations made within the past year, and suggestions for new applications of the carbon to water purification processes.

Without suggestion that carbon is a panacea for all ills in a water supply, these authorities say:

"In experimental units in municipal plants, it has been found that the carbon treatment effects a removal of taste and odor which had been found impossible with any of the other three methods named.

"In the typical carbon treatment—that is, the regular passage of super-chlorinated water through a bed of water—practically no operation is required. The carbon functions automatically, accurately, constantly. No lookout is necessary to detect the occurrence of taste in the raw water. No feeding device is necessary to proportion a reagent with the exactness which is required to counteract the taste and yet not impart a taste-producing or wasteful excess of the reagent. The carbon may be said to combine the functions of a watchdog and the police department, meeting the emergency automatically and fully whenever it arises.

"An incidental but important applica-

tion of the automatic corrective characteristics of carbon is in the sterilization of relatively small community water supplies. In a great many cases of this sort, where only occasional supervision is possible, the dosage of chlorine is based on the normal demand for water. During the night, or at other times when the load drops below this normal demand, the dosage of chlorine frequently increases to a point where objectionable tastes and odors are produced. A carbon treatment unit placed in the line before the water enters the distribution system will automatically prevent the occurrence of chlorine tastes and odors."

The cost of carbon treatment is said to depend on the usual factors of installation, operation and maintenance, overhead and depreciation. The cost of operation is "practically negligible," only a nominal amount of attention being required, consisting for the most part in washing the carbon units at intervals of one to six months.

The carbon employed by the International Filter Company is "Hydrodarco," made by special processing of certain Texas lignites. It contains about 70 per cent of pure carbon, with a siliceous skeleton giving it ample mechanical strength.

Missouri Road Bids

Jefferson City, Mo.—Bids are to be received December 2 by the Missouri State Highway Commission on 50 roads and 37 bridges.

HIGHWAYS AND MOTOR TRANSPORT

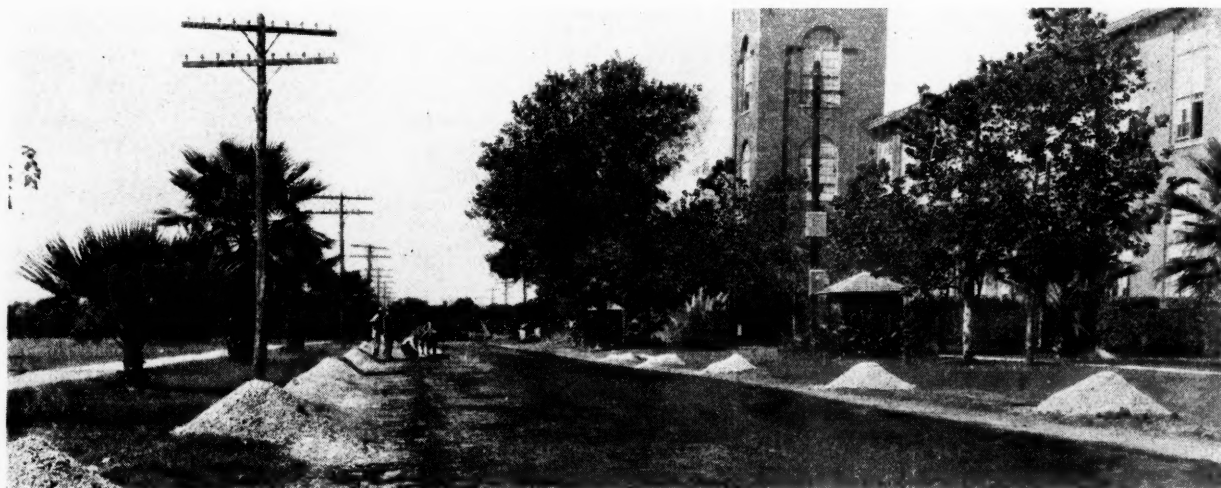
An Experimental Cotton Road in Texas

Recent inspection of an experimental cotton cloth road on Highway No. 3 near the city of Gonzales, Texas, laid in October 1929 by the Texas State Highway Department, Gibb Gilchrist, State Highway Engineer, Austin, shows that it is holding up well, with no signs of deterioration. The road consists of a crushed flint clay gravel and was placed 10 inches loose, this being thoroughly shaped and rolled until the proper cross section was obtained. It was then opened to traffic for 30 days. Before applying the prime coat every effort was made to bring the base to the proper cross section, depressions being brought to grade with asphalt patches and the base thoroughly swept with a revolving broom until all loose particles were re-

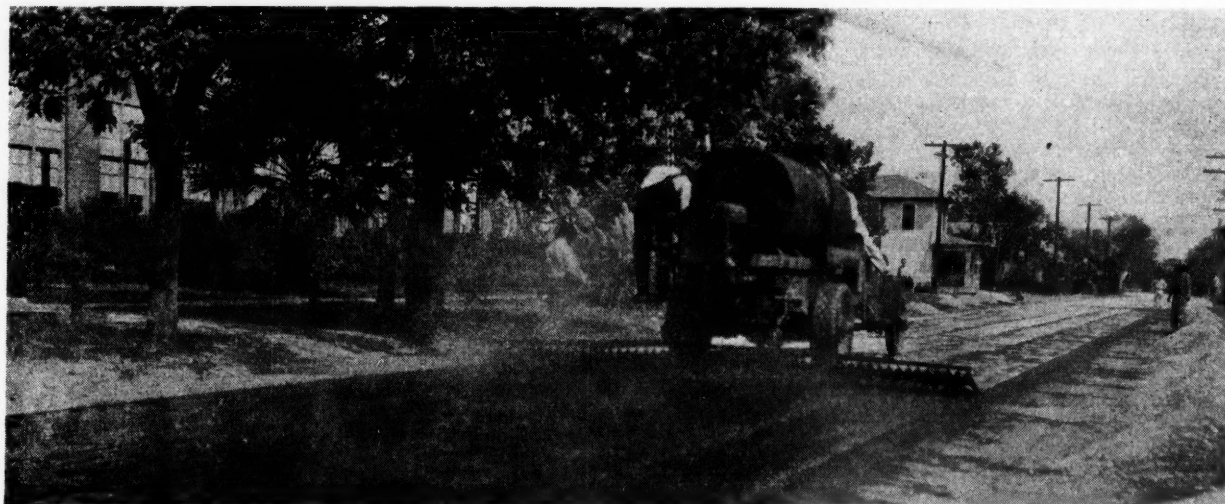
moved. Foreign substances remaining were removed by shovels and hand brooms. Care was taken to clean thoroughly the outer edges of the strip to be treated.

The prime coat of .3 gallon per square yard of light tar of 8 to 13 viscosity was applied with an asphalt distributor after being heated to 140 degrees F. Further experiments were made on a short section with 250 penetration asphalt as a primer, and when applying the top course it was noticed that the canvas had less tendency to stick to the wheels of the distributor. After an interval of 17 hours, a cotton fabric weighing three ounces per yard, 38 inches wide and costing .085 cents a yard was spread longitudinally along the entire surface of the

road treatment, 2½-inches being allowed for laps. This fabric, known as "Osborne," was manufactured by the Gonzales Cotton Mill, Gonzales, Texas. Approximately .5 gallon per square yard of 250 penetration asphalt was then applied to the fabric and surface, using an asphalt distributor. The surface was immediately covered with crushed limestone material at the rate of 1 cubic yard to 30 square yards of road surface. This was leveled and shaped with hand brooms and a broom drag until a smooth surface was obtained and was then rolled with a 5-ton roller, making it ready for traffic. The cost of the project, 468 feet in length and 20 feet in width, was .36 cents a square yard, or \$4,233.88 per mile in place.



Light Tar Primer on Gravel Base, 15 Hours After Application. The Tar Was Heated to 140° F. and Applied by an Asphalt Distributor at Rate of .3 Gallons Per Square Yard.

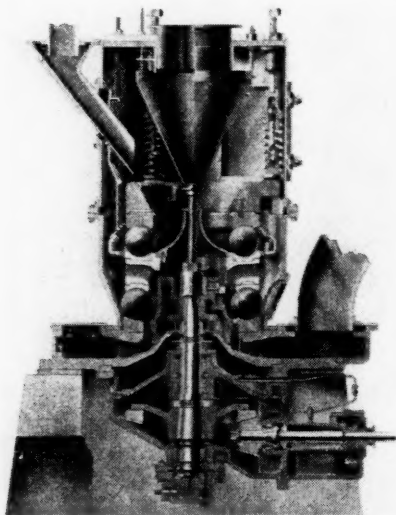


Applying 250 Penetration Asphalt on Canvas at Rate of .5 Gallons Per Square Yard.

NEW AND IMPROVED EQUIPMENT

Fuller Lehigh Pulverizer

The Fuller Lehigh Company, Fullerton, Pa., has placed on the market type B pulverizer, an air separation ball mill which retains desirable features of the Lehigh Mill, including the spherical ball and grinding ring principle of pulverizing. It consists essentially of a top or separator section, an intermediate or pulverizing section and a base or drive section. The mill has no metal-to-metal abrasion of grinding parts, the wear on these parts being due almost entirely to coal abrasion. Grinding elements consist of two rows of large diameter balls and two stationary rings and one rotating grinding ring. Grinding pressure between the balls and rings is applied and kept uniform by externally controlled steel springs mounted in the top



A Quiet-Running Mill for Grinding Coal

section. Main driving shaft is supported by a self-aligning heavy duty Rollway thrust bearing and no lubrication is required within the grinding zone. The pulverizers are built in capacities up to and including 40 tons of coal per hour.

Rayon Spindle Motor for High Speed Operation

The General Electric Co., Schenectady, N. Y., announces an improved spindle motor for high-speed rayon pot-spinning. The new motor is available in three sizes depending on the required load and operating speeds and can operate at a speed as high as 10,000 r. p. m. Of the high-frequency, three-phase, vertical, ball-bearing, induction type, the motor is totally enclosed in a heavy cast frame designed to protect the working parts

from dripping acid. An acid-resisting finish coats this frame, while a textolite deflector prevents acid from entering the top of the motor. The rotor is of indestructible cast construction and the stator windings are impregnated with acid-resisting varnish. Large oil reservoirs and filtration of the oil within the motor obviate necessity of frequent lubrication.

Apron Conveyor

The Chain Belt Co., Milwaukee, Wis., has standardized a design of apron conveyor and feeder designated as "Leak Proof," in which equalizing saddles and renewable outboard rollers and bushings have been incorporated. For varying



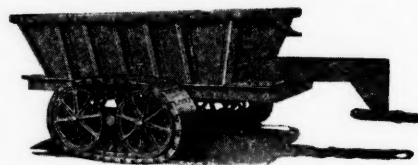
"Leak Proof" Conveyor and Feeder

conditions this conveyor is furnished in four sizes, three 9-inch pitch and one 12-inch pitch. Sides of the new device are welded to the double beaded points, a feature that allows handling of fine material. The conveyor load is carried on outboard rollers, which rotate over case-

hardened steel sleeves mounted on through rods. These rods are removable without disturbing the chain or any part of the machine. Aprons are attached to the saddles, these being mounted between chain side bars.

Crawler Wagon

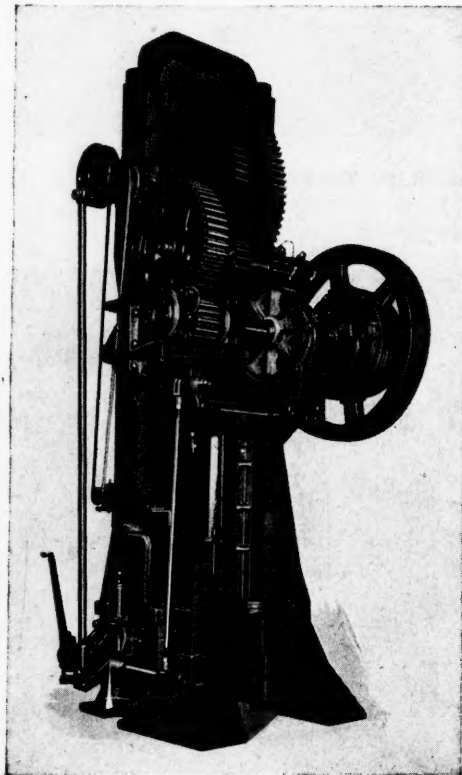
The Dreadnaught crawler wagon is a development of the Crawler Wheel Division of the Electric Wheel Co., Quincy, Ill. In describing this product the company emphasizes the locked track pins and link bolts, the one-piece slotted links, provisions for grease retention, and design of the track wheel spindle and bearing assembly. Other features are the rigid arched drawbar, rear hitch, light draft, and 27½-inch unobstructed clearance under the center axle and frame. Approximate weight of the grader wagon is 13,700 pounds and of the shovel wagon, 14,000 pounds.



With Steam Shovel Flare Boards

Long Stroke Reducing Press

A mechanical power press for redrawing long brass, copper or aluminum shells at greatly increased speeds has been designed and built by the E. W. Bliss Company, Brooklyn, N. Y. This machine, designated as the No. 906 long stroke reducing press, has a 36-inch stroke and operates at a speed of 18 strokes a minute. Twisting movement of the crankshaft is eliminated in the new press by applying driving power to the point where the cheeks would be on a regular crankshaft, and in place of these cheeks are two large steel gears connected by a crankpin 18 inches from the center line of the twin gears. The press is of the built-up frame type, with shrunk-in tie rods, double-gear and equipped with a full automatic friction clutch having both foot treadle and hand lever control. Drive shaft and friction clutch are mounted on Timken roller bearings. Crankpin and other journal bearings are fitted with removable bronze bushings.



Bliss Machine to Operate at Increased Speeds

CONSTRUCTION DEPARTMENT

and

NEW ENTERPRISES

Covering the initial announcements of new undertakings with additional information about enterprises previously mentioned. The date at the end of an item indicates preliminary facts were given in a previous issue.

When writing to a new firm or corporation the name of at least one of the incorporators should be placed on the envelope to expedite its handling by the local postoffice. Mail may be delayed unless complete address is given.

Building and Construction Proposed and Contracts Awarded; Manufacturing, Mining, Power, and Land Developments; Public Works; Transportation; Communication; Financial Enterprises; New Business Opportunities Reported in the Sixteen Southern States.

The Daily Construction Bulletin of the Manufacturers Record gives each business day advance news published in this weekly review. It is invaluable to those requiring prompt information. Subscription price \$40.00 a year.

Airports, Airplane Plants, Etc.

Ala., Montgomery—U. S. Army Air Corps, M. A. McFadden, Constr. Q. M., receives bids Dec. 18 for construction of 4 standard airplane hangars at Maxwell Field; conc. and metal construction. 10-30

Fla., Lake Placid—City, reported, plans airport; George T. Berger, Engr., Tampa.

Fla., Miami—Safety Aircraft Corp. incorporated; H. P. Emerson, 460 N. E. 69th St.

La., New Orleans—W. E. Arthur, Los Angeles, Calif., Pres., and Gerald H. McClelland, Cleveland, O., Dist. Mgr. of National Airport Engineering Co., Ltd., making preparatory survey of facilities for airport.

La., Shreveport—City of Shreveport, J. G. Palmer, Mayor, reported, deeded 23,000 acres land near city to War Dept., Washington, D. C., for use as Army aviation field to be developed at cost of \$7,000,000; construct combat airfield; air field to be future home of Third Attack Group, now stationed at Fort Crockett, Tex. 11-6

Mo., Bridgeton—City of St. Louis, reported, soon receive bids for 1 story, 90x120 ft., brick and conc. hangar with 16x120 ft. lean-to on each side for St. Louis Naval Reserve at St. Louis Flying Field; cost \$35,000; L. R. Bowen, Engr., 5980 Page Blvd., St. Louis.

N. C., Charlotte—Weeks Aircraft Corp., Etting O. Weeks, Milwaukee, Wis., reported, plans construction of second hangar at Charlotte Airport; 80x100 ft.; brick, steel and tile; will probably let contract about Dec. 1. 10-30

Tenn., Nashville—Universal division, American Airways, Inc., subsidiary of the Aviation Corp., 122 E. 42nd St., New York, extend Cleveland-Louisville line to Nashville about Jan. 1.

Tex., San Angelo—City, E. E. Laurie, City Mgr., votes Dec. 30 on airport bonds. 10-30

Va., Langley Field, Hampton—American Sheet Metal Corp., 2713 Coly Ave., Norfolk, Va., has contract for 4 guide vane assemblies for Full Scale Wind Tunnel at Langley Field; at cost of \$27,800 and H. M. Lucas, Portsmouth, Va., at \$13,400 for same numbers E. H. Chamberlain, Pur. Agt., National Advisory Committee for Aeronautics, Navy Bldg., Washington, D. C.

Bridges, Culverts and Viaducts

Proposed Construction

Ala., Birmingham—City, A. J. Hawkins, City Engr., opens bids Dec. 4 for 18th and 20th St. underpasses, costing \$195,000 and \$150,000, respectively. 10-23

D. C., Washington—District Comms., Dist. Bldg., approved design submitted by Paul Cret, Archt., 112 S. 16th St., in collaboration with Modjeski, Masters & Chase, 1420 Walnut St., both Philadelphia, Penn., for steel arch bridge to replace present span over Klinge Valley, Connecticut Ave.; working drawings started by Municipal Architect's Office and will be completed and bids advertised by Jan. 15 and awarded before

March 1; conc. faced abutments supporting single steel arch 250 ft. long, 60-ft. roadway with sidewalks on each side, native stone.

Florida—State Roads Dept., R. W. Bentley, Chmn., Tallahassee, plans rebuilding 50-ft. conc. bridge over Bayou-Marcus Creek, damaged by high water.

Louisiana—State Highway Comsn., Russell R. McGuire, advises regarding status of plans for bridges proposed: Morgan City bridge over Atchafalaya River—surveys now being completed, plans not started, bids Krotz Springs bridge over Atchafalaya River will be received July 1, 1931, cost \$1,750,000; er—surveys and plans not started, bids to be received about July 1, 1931, cost \$1,500,000; Moncla Bridge over Red River—surveys completed, plans 80% complete, bids to be received Jan. 6, 1931, cost \$400,000; Alexandria Bridge over Red River—surveys started, bids to be received about June 1, 1931, cost \$700,000; Coushatta bridge over Red River—surveys completed, plans 80% complete, bids to be received about Jan. 6, 1931, cost \$400,000; Shreveport bridge over Red River—surveys 80% complete, plans not started, bids to be received about June 1, 1931, cost \$700,000; Sterlington bridge over Ouachita River—surveys completed, plans 10% complete, bids to be received about April 1, 1931, cost \$800,000; Harrisonburg bridge over Ouachita River—surveys completed, plans 10% complete, bids to be received about April 1, 1931, cost \$400,000; Jonesville bridge over Black River—surveys completed, plans 10% complete, bids to be received about April 1, 1931, cost \$600,000; 7 eligible for Federal aid approximating \$2,500,000; all plans and surveys being prepared by engineers of Louisiana Highway Comsn.

Maryland—State Roads Comsn. has low bids for 4 bridge projects. See Roads, Streets and Paving.

Maryland—State Roads Comsn., L. H. Stewart, Sec., Baltimore, opens bids Dec. 2 for extensions to triple span conc. girder bridge over Great Seneca Creek, road, Galtersburg to Frederick, Cont. M-162-511, Montgomery County.

Missouri—State Highway Comsn. receives bids for 37 bridges. See Roads, Streets and Paving.

Oklahoma—State Highway Comsn., A. R. Losh, Engr., Oklahoma City, has preliminary plans for 6 span 96-ft. bridge, State Highway 18, Pottawatomie County; \$35,000.

Okl., Arapaho—Custer County, Jesse Hatchett, Clk., complete plans about Dec. 15 for \$300,00, steel, rein. conc. bridge, over South Canadian River near Thomas; Ralph James, Conslt. Engr., 519½ W. Main St., Oklahoma City.

Texas—See Roads, Streets and Paving.

Virginia—State Dept. of Highways, C. S. Mullen, Ch. Engr., Richmond, has low bid from Blount & Hayman, Brodnax, \$46,260, for bridge over James river near Lick Run, Botetourt County, Proj. F57B1-2. 11-6

Va., Richmond—Chesapeake & Ohio Ry. Co., C. W. Johns, Ch. Engr., and City, Dept. of Public Works, start building Magnolia St. underpass by Jan. 1; construction in charge of railroad, City sharing cost. 10-30

West Virginia—See Contracts Awarded.

Contracts Awarded

Alabama—See Roads, Streets and Paving.

Arkansas—State Highway Comsn. tentatively let contracts for 37 bridges. See Roads, Streets and Paving.

Fla., Inverness—Citrus County Comms., let contract to Murphy Construction Co., Exchange Bldg., Orlando, for bridge over Withlacoochee River to replace Rutland bridge. 10-9

Kentucky—State Highway Comsn. let contract to Woodruff & Co., 1046 Barret St., Louisville, at \$9997, for bridge, Bloomfield-Bardstown road, Nelson County.

Kentucky—Following have sub-contracts for bridge, Maysville, of State Highway Comsn., H. D. Palmore, Engr., Frankfort: Cement, Basic Products Co., Kenova, W. Va.; sand and gravel, Suiter Material & Transport Co., Manchester, Ohio; sandstone facing for piers, Ellwood Stone Co., Ellwood City, Pa.; rein. steel, Jones & Laughlin Steel Co., Ross St., Pittsburgh, Pa., and West Virginia Rail Co., West Virginia Rail Co. Bldg., Huntington, W. Va.; Dravo Contracting Co., Dravo Bldg., Pittsburgh, Pa., and John A. Roebeling Sons Co., Trenton, N. J., Gen. Contr.; following for bridge at Smithland: Cement, Kosmos Portland Cement Co., Starks Bldg., Louisville; rein. steel, Jones & Laughlin Steel Co.; sand and gravel not let; Dravo Contracting Co., and Nashville Bridge Co., foot of Shelby Ave., Nashville, Tenn., Gen. Contr. 9-25 and 10-10

La., New Orleans—City Comsn. Council let contract to O'Brien Construction Co., Queen and Crescent Bldg., for abutment to Jefferson Davis Parkway bridge over New Basin Canal, and for placing creosoted pile clusters to protect abutment.

Mo., Reeds Spring—See Miscellaneous Construction.

N. C., Wrightsville Sound—Wilmington-Wrightsville Beach Causeway Co., and Tide Water Power Co., 219-221 Princess St., Wilmington, let contract to Al. S. Fox & Co., Dayton, Ohio, for \$110,000 Scherzer rolling lift, bascule type bridge over Intracoastal Waterway; will operate by electric power and be controlled from toll house; J. L. Becton, Acting Conslt. Engr. 10-16

West Virginia—State Road Comsn., C. P. Fortney, Chmn., Charleston, let contract to K. E. Reed & Co., South Charleston, Charleston, at \$23,280, for Bull Creek bridge, Wood-Pleasants Counties; all bids for superstructure rejected and project will be readvertised Dec. 15. 10-9

Canning and Packing Plants

Fla., Haines City—Ralph Polk, Jr., Sec. Polk Co., Haines City, reported, acquired 8 acre tract south of Michigan Ave. bridge; may erect branch plant.

Fla., Tampa—Tampa Union Terminal Inc., 13th and York Sts., under direction of R. E. Foster is going ahead with construction of freezing plant.

La., Bunkie—Chamber of Commerce interested in location of cannery.

Miss., Shinnston—Dorgan & McPhillips Packing Corp., 60 St. Louis St., Mobile, Ala., let contract to Dye and Mullings for first unit of canning plant; 80x250 ft., rein. conc. foundation and floors, corrugated siding, struc. steel frame; other units to include boiler room, machine shop, water plant, railroad side track.

Tex., Raymondville—Alexander Marketing Co., 740 W. Stenger St., San Benito, construct 1 story citrus packing plant.

Va., Winchester—Glaize and Hurst, Fred L. Glaize, East Picadilly St., reported, rebuild burned apple packing plant.

Cotton Compresses and Gins

Tex., Edna—Edna Gin Co., capital \$30,000, incorporated; H. H. and W. H. Freis.

Tex., El Paso—Valley Compress Co., Inc., capital \$25,000, chartered; Haymon Krupp, 119 W. Overland St.

Clayworking Plants

Ga., Atlanta—Southern King Refractories, Inc., 489 Stephens St., S. W., purchased recently a manufacturing plant for manufacture and distribution of high temperature refractories as a licensee of King Refractories Co., Inc., Buffalo, N. Y.; machinery and equipment now being installed in Atlanta plant; products include "Flame" brand high temperature refractories and "Mono" baffles; E. H. Bollenbacher, Pres.

Va., Norfolk—Mid-Atlantic Cemroc Corp., incorporated; John E. Johnson, 3011 Buckingham St.; manufacture "Cemroc" units of common, standard and H bricks.

Coal Mines and Coke Ovens

Mo., St. Louis—Deep Vein Coal Co., 818 S. Seventh St., incorporated; Wm. M. Stephenson, M. Lee.

W. Va., Shinnston—Bethlehem Fairmont Coal Co., Harrison, W. Va., acquired unmined coal in southern section of Willard mine property on Mudlick run near Shinnston.

Drainage, Dredging and Irrigation

Fla., Jacksonville—U. S. Engr. Office has low bid from Clark Dredging Co., 343 S. W. North River Dr., Miami, for dredging approx. 3,406,000 cu. yd., place measurement, Indian River Portion of Intracoastal Waterway, Jacksonville to Miami, Sections 1 and 2 combined, at \$253,314. 11-13

La., Hammond—Tangipahoa Parish Drainage Dist. opens new bids Dec. 19 for gravity drainage system, involving earth excavation for drainage channels, clearing and cleaning natural stream channels and constructing rein. conc. and timber bridge; E. G. Frailer, Engr.

La., Ponchatoula—Commrs. of Gravity Drainage Dist. No. 2 of Tangipahoa Parish let contract to Boone & Wester, Hammond and New Orleans, at approx. \$120,000 for gravity drainage system; E. G. Frailer, Engr., Engr., Hammond. 11-20

Okla., Oklahoma City—Deep Fork Drainage Dist. 14 Oklahoma County, R. S. James, 519½ W. Main St., Engr., has preliminary plans for drainage work; \$35,000.

Tex., Brownsville—Cameron County Water Control Dist. No. 18, J. Lloyd Parker, Pres., Olmito, voted \$482,000 bonds for improvements.

Tex., Brownwood—Brown County Water Improvement Dist. No. 1, F. S. Abney, Pres., let contract to Standard Paving Co., Majestic Bldg., Fort Worth, at \$590,003, for earthen reservoir dam across Pecan Bayou; D. W. Ross, Engr., Brownwood. 11-13

Virginia—U. S. Engr. Office, Navy Bldg., Washington, D. C., has low bid from Atlantic Gulf & Pacific Co., 13 Park Row, New York, at \$31,887, for maintenance dredging 182,525 cu. yd., Rapahannock River. (See Washington, D. C., 10-23.)

Electric Light and Power

Electric light and power work in connection with many LAND DEVELOPMENT operations involves the expenditure of large sums of money. See that classification for details.

Ark., Hot Springs—Citizens Electric Co., 915 Central St., extend white way lighting system Malverry, Market and Benton Aves.

Kentucky—Robt. H. McNeill, National Press Bldg., Washington, D. C., will have joint public hearing at State Capitol Bldg., Frankfort, Dec. 4 by Kentucky Railroad and Highway Comsn., Attorney General of Kentucky, Tennessee Railroad and Public Utilities Comsn., and U. S. Dist. Engr.,

Chattanooga, Tenn., representing Federal Power Comsn., Washington, on application for preliminary permit for power navigation project on Tennessee River at Aurora Landing; proposed high dam will replace 4 low dams and will extend 9 ft. navigation to Pickwick Landing on Big Bend Shoals, distance of 160 miles; dam and power house proposed will be located in Kentucky but greater part of head and reservoir from which power will be developed will be within State of Tennessee; dam proposed is a conc. dam having earth fill wings and normal lift of 50 ft., equipped with gates to provide a 10-ft. surcharge in interest of flood control and power output, length of dam 6009 ft. including spillway 1939 ft. long; power house will contain initial installation of 165,000 kw. (227,000 H. P.); lock of ample size for passage of river commerce and of design to be approved by Ch. of Engineers and Sec. of War will be provided; low pool level of reservoir proposed will be elevation 332 ft. above sea level; length, 163 miles and will afford 9 ft. slack water navigation on Pickwick Landing on Big Bend Shoals; area of pool at surcharge level, will be 129,973 acres; area of land to be flooded will be 108,500 acres; navigation power project will provide 9 ft. slack water navigation from Ohio River to Pickwick Landing project. 11-20

La., Crowley—City, reported, considering erection of power plant.

Maryland—Susquehanna Transmission Co. of Maryland, owned by Pennsylvania Water & Power Co., Lexington Bldg., Baltimore, E. M. Sturtevant, Atty., Lexington Bldg., Baltimore, will have hearing Dec. 1 before Public Service Comsn., Baltimore, on application to construct 2 power lines from Safe Harbor, Pa. to Baltimore; one line to have terminus at Consolidated Gas Electric Light & Power Co.'s plant at Westport and other to site of proposed plant at Turner's Station; initial capacity 255,000 h. p., ultimate capacity 510,000 h. p.

Miss., Purvis—Mississippi Power Co., Gulfport, reported, plans construction high voltage transmission line from Lumberton to Purvis.

Okla., Beaver—Oklahoma Electric & Water Co., D. W. Robinson, Engr., 1200 Texas St., Fort Worth, Tex., reported, plans rebuilding distribution system.

Okla., Cleveland—City, reported, plans \$75,000 electric light plant.

Okla., Frederick—City investigating cost and operation of installation of municipal light plant.

Okla., Hominy—City, reported, soon vote on \$150,000 bonds for power plant; V. V. Long & Co., Engrs., Colcord Bldg., Oklahoma City. 10-2

Okla., Nowata—City having plans prepared for construction of \$100,000 electric light plant.

Tenn., Chattanooga—Mountain Power Co., C. P. Hereford, Pres., Tellico Plains, applied to Federal Power Comsn., Washington, D. C., for preliminary permit for development on Tellico River, tributary of Little Tennessee River, in Monroe County and within Cherokee National Forest; project will consist of 7 power reservoirs with 6 power houses and 3 auxiliary storage dams; approximately 1300 acres are on national forest land; plans of development proposed consists of initial storage capacity of 38,000 acre ft.; installed capacity of 17,200 kw. on basis of 24 hr. operation or 4120 kw. on basis of 19 hr. operation. 7-24

Tex., Dallas—Dallas Power & Light Co., Interurban Bldg., advises W. E. Callahan Construction Co., Kirby Bldg., has contract for earth work in connection with Mountain Creek dam; contract for round piling and steel sheet piling awarded to Gifford-Hill & Co., Inc., North Texas Bldg.; Texas Construction Co. is acting as general contractor and will do conc. work in connection with spillway. 11-13

Va., Natural Bridge—Natural Bridge of Virginia, Inc., John Temple, Resident Director, reconstructing power and heating plant; also remodeling and rebuilding properties. See Want Section—Machinery and Supplies.

Va., Richmond—James Fox & Sons, 2501 E. Franklin St., Richmond, has contract for Wise Sub-Station for Dept. of Public Utilities.

West Virginia—Jefferson County Court, Charles Town, W. Va., reported, granted franchise to Northern Virginia Power Co., Winchester, Va., subsidiary of Potomac Edison Co., Hagerstown, Md., to extend power and lighting lines over number public roads in Jeerson County; construct lines on several roads north of Charles Town and also from Shenandoah Junction, Shepherdstown, Middleway, Kearneysville, Summit Point, Bloomery, etc. 10-23

W. Va., Huntington—City, reported, install additional street lights.

Flour, Feed and Meal Mills

Miss., Biloxi—The Biloxi Grit Co., East Beach St., will rebuild burned plant for crushing oyster shell; 2 story; 30x120 ft., wood, iron and metal; cement floors, corrugated iron roof; materials purchased; will install motors, pulleys, shafting, screens, etc.; O. E. Thompson, Contr. 11-20

Foundry and Machine Plants

D. C., Washington—J. E. Hurley, 1219 Ohio Ave., N. W., reported, construct 1 story, 77x93 ft., brick and rein. conc. shop on Half St., S. E., near K St.; George T. Santmyers, Archt., 1418 I St.

Md., Baltimore—DeCou & Chidlaw, Eutaw and Biddle Sts., has contract for 3 story foundry, Dallas and Lancaster Sts., for Caroline Foundry Co., 723 S. Caroline St.; W. S. Austin, Const. Engrs., Maryland Trust Bldg. 10-30

N. C., Charlotte—Charlotte Pipe and Foundry Co., Commercial Bldg., reported, rebuild burned foundry, McNinch St. and Dowd Rd.; 1-story, fireproof, cost \$44,000; McClelland Co., Latta Arcade, Contrs. 10-30

Garages and Filling Stations

D. C., Washington—R. W. Bolling, 1 Dupont Circle, N. W., erect brick auto laundry, 1822 M St., N. W.; cost \$16,000.

D. C., Washington—Kass Realty Co., 1116 Vermont Ave., reported, construct 1 story, brick and tile gasoline station; cost \$15,000; owner builds.

D. C., Washington—Penn Realty Corp., 133 Penn. Ave., N. W., has plans by Julius Wenig, Archt., Edmonds Bldg., for 1 story, brick filling station 4th St. and Belair Rd., Takoma Park.

Fla., Bartow—Standard Oil Co. of Kentucky, F. J. Swartz, 110 Oak St., Tampa, reported, construct filling station.

Fla., Miami—Goodrich Silvertown, Inc., Akron, O., advises recent report that company would construct \$200,000 distributing plant for southeast Florida is erroneous; plans for Florida uncertain at this time. 11-20

Fla., St. Petersburg—Shell Petroleum Co., Lynch Bldg., Jacksonville, reported, plans filling station N. W. Cor. Fourth St. and Fourth Ave.

Md., Baltimore—Shell Eastern Petroleum Products, Inc., Court Square Bldg., J. McGarey, Supt. Constr., construct filling station Washington Blvd.; brick and stone; 1 story.

Md., Baltimore—American Oil Co., American Bldg., let contract to Thos. F. Leonard, 3615 Brehms Lane, for Lord Baltimore filling station, Belair Rd. and Parkmont Ave.; Laechi Construction Co., Munsey Bldg., for Lord Baltimore filling station, 33rd and Old York Rd.; both brick, stucco, 1 story.

Mo., Carrollton—Urban Service Co., Kansas City, granted permission by State Public Service Comn., Jefferson City, to construct natural gas distribution system; cost \$84,000; has franchise.

Mo., Harrisonville—Phillips Petroleum Co., Bartlesville, Okla., reported, construct \$60,000 gas booster station.

Mo., Kansas City—DeWitt Chevrolet Co., capital \$75,000, incorporated; J. Roger De Witt, Bernard S. Quick, Jr., 2927 Hickham Drive.

Mo., Joplin—Wall Street Nash Co., incorporated; O. A. Knight, 614 Wall St.

Mo., Salem—Martin Motor Co., capital \$15,000, incorporated; E. E. Martin, J. H. Butler.

Oklahoma—Phillips Petroleum Co., Bartlesville, reported, construct gas booster stations, Alva and LeCerne; cost \$60,000 each; A. H. Riney, Engr., Bartlesville.

Okla., Oklahoma City—City voted renewal of gas franchise to Oklahoma Gas & Electric Co.

Tex., Brady—Humble Oil and Refining Co., reported, construct filling station S. Blackburn St.

Tex., Harlingen—Firestone Tire & Rubber Co., B. D. Hunt, Constr. Engr., Akron, Ohio, let contract to Velton Construction Co., Brownsville, for \$10,000 building; 1 story, brick and rein. conc. 11-6

Tex., Houston—Swift & Co., 1102 Commerce St., reported, construct 2 story rein. conc. garage; cost \$15,000.

Tex., Houston—Louis Blaustein, Pres., American Oil Co., American Bldg., Baltimore, Md., and associated interests, reported, acquired control of Crown Central Petroleum Corp., First Natl. Bank Bldg., operating 10,000 bbl. daily capacity refinery on Houston Ship Channel.

Tex., Madisonville—Parten Motor Co., will erect \$20,000 auto plant.

Tex., Morse—Morse Motor Co., Inc., chartered; H. S. Dunham, A. J. Womble.

Tex., San Antonio—Adams & Adams, Real Estate Bldg., preparing plans for remodeling of 3 story garage building on Travis St. between Navarro and N. St. Mary's St., for A. B. C. Garage, No. 3.

Tex., San Benito—Firestone Tire & Rubber Co., R. D. Hunt, Constr. Engr., Akron, Ohio, let contract to Velton Construction Co., Brownsville, for \$10,000 building; brick, rein. conc., 1 story. 11-6

Va., Roanoke—Hicks-Reebes Motor Co., capital \$50,000, incorporated; Winfield I. Hicks, Morris Apts.

Gas and Oil Enterprises

Fla., Jacksonville—Hy Tube Sales Co., incorporated; P. N. Coleman, 3311 Pine St.

Ga., Atlanta—Pan-American Petroleum Corp., Rhodes-Haverty Bldg., reported, soon call for bids for alterations and additions to bulk depot 555 Western Ave., N. W.; install heating plant.

Ky., Princeton—Indiana-Kentucky Natural Gas Co., subsidiary of Missouri-Kansas Pipe Line Co., 820 Dwight St., Kansas City, Mo., install gas distribution system; has franchise.

Maryland—Maryland Gas Transmission Corp., T. B. Gregory, 61 Broadway, New York, in connection with plans to serve gas to eastern seaboard industrial centers, is constructing first section of gas line which will extend from point near Coatesville, Pa., to point near Beaver Creek, Ky.; pipe line will be 456 miles long and will be constructed of steel pipe, 20-in. in diam. and will require 80,000 tons of steel; first section, extending from Coatesville to point near Rockville, Md. is under construction and work is being done by local labor; it is expected that construction to Potomac River will be completed shortly; early in spring it is planned to continue active work on balance of line and complete by mid-summer; line to Coatesville end connects with 4 gas mains extending entire length along southern boundary of State of Pennsylvania to point near Morgantown, W. Va., at which point it connects into the gathering system of net work of pipe lines extending through gas fields of Ohio, Pennsylvania, West Virginia and Kentucky and through this system pipe line now being constructed through Maryland will be enabled to sell gas at wholesale in Maryland and Dist. of Columbia by Jan. 1; transmission line will not engage in retail distribution of gas. 9-4

Miss., Hattiesburg—Southern Petroleum Co., Jackson, reported, negotiating for gas franchise. 11-20

Miss., McComb—Mississippi Industrial Gas Co., Jackson, reported, granted gas franchise; construct distribution system; extend line, Terry to here.

N. C., Spindale—Utilities Gas & Electric Co., 22 W. Monroe St., Chicago, Ill., reported, plans installing central gas plant at Spindale to supply Spindale, Rutherfordton and Forest City; expend about \$200,000 in next 3 months; franchises in each city granted to company and to Carolina Central Gas Co., Hendersonville, a subsidiary. 5-1

Tex., Borger—Westinghouse Electric and Manufacturing Co., East Pittsburgh, Pa., has contract for 21 sets of step-up gears for sever. booster stations in connection with 760-mile gasoline pipeline being constructed from Borger, Texas, to St. Louis, Mo., by Phillips Pipe Line Co., subsidiary of Phillips Petroleum Co., Bartlesville, Okla.; Chicago Pneumatic Tool Co., 6 E. 44th St., New York, has contract for 19 265-h.p. gas engines; Bryon Jackson, and Worthington Pump & Machinery Corp., 2 Park Ave., New York, for pumps.

Texas—Marathon Oil Co., Thompson Bldg., Tulsa, Okla., reported, acquired Del Rio Refining Co.'s skimming plant at Del Rio, Eagle Distributing Co. and Waggoners Three D products distribution system; serving 125 Texas filling stations.

Texas—Oklahoma Natural Gas Corp., 624 S. Boston St., Tulsa, Okla., reported, soon begin work on construction 125 mile pipe line from Big Lake oil field to San Angelo on east and Pecos Valley Power and Light Co. on the west; surveys being made; construction finished in 60 days.

Tex., Amarillo—Mert Oil Corp., capital \$100,000, incorporated; T. J. Coffey, McLean; I. L. Robinson, Pampa.

Tex., Eastland—"56" Petroleum Corp. of Texas, capital \$10,000, incorporated; F. R. Savage, S. D. McKinnin.

Tex., Fort Worth—Beeco Oil Co., incorporated; W. J. Meggs, Flatiron Bldg.

Tex., Houston—R. S. M. Co., Inc., chartered; M. Manning, 4310 Greeley St.

Tex., Liberty—D. B. Elkins, will have charge of construction of 6-in. pipe line between Liberty and Dayton for Dixie Gas and Fuel Co., Houston; company has franchise in both cities.

Tex., Pleasanton—Southwest Distributing Co., subsidiary United Gas Co., Esneron Bldg., Houston, reported, acquired Live Oak Gas Co., serving Pleasanton and North Pleasanton; plans improvements and extensions.

Tex., San Antonio—Copane Oil Co., Inc., capital \$30,000, incorporated; W. G. Hugly, 631 E. Ashby St.

Tex., Victoria—J. E. Hartman, Constr. Foreman for Southern Union Gas Co., 701 Browder St., Dallas, will superintend construction of Utilities Fuel Supply Co.'s gas line from Refugio field to Victoria; main line will follow route in Victoria county from Refugio County line through Amerv. Williams, McFaddin, Fagan and Warden lands to Coletto Creek, penetrate Guadalupe River valley from creek to Victoria; franchise for laying line granted by County Comms. Court. 11-13

Va., Fredericksburg—City, L. J. Houston, Jr., City Mgr., receives bids Dec. 16 for sale of gas plant and 20 yr. gas franchise. See Want Section—Bids Asked.

Ice and Cold-Storage Plants

Ga., Gainesville—City Ice Co. incorporated; C. B. and C. J. Romberg.

Tex., Dallas—Wichita Ice Co., capital \$250,000, incorporated; D. M. Faulkner, 706 Hillcrest St.

Land Development

D. C., Washington—Public Buildings and Park Comsn., 1613 Navy Bldg., reported, let contract to Northern Virginia Construction Co., Clarendon, Va., for retaining wall Rock Creek and Potomac Parkway between P and Massachusetts Ave., N. W.

Fla., Marianna—Evans Land and Mfg. Corp., incorporated; C. R. Evans, D. L. Rankin.

La., New Orleans—Queen Realty Co., Inc., capital \$100,000, incorporated; Abraham Burglass, 1400 Canal St.

Md., Baltimore—Seaboard Development Corp., 1602 First National Bank Bldg., incorporated; Theodore C. Waters, Enos S. Stockbridge.

La., New Orleans—Winfred Realty Co., Inc., capital \$12,000, incorporated; James E. Cockerham, 941 St. Maurice St.

N. C., Asheville—Pisgah Clay Co., Inc., capital \$50,000, chartered; Fred T. Allen, Jackson Bldg.

N. C., Asheville—Tryon Heights, Inc., capital \$50,000, incorporated; Fred T. Allen, Jackson Bldg.

N. C., Asheville—Mitchell Heights, Inc., chartered, capital \$50,000; Fred T. Allen, Jackson Bldg.

N. C., Asheville—Tibbett Farms, Inc., capital \$50,000, incorporated; Fred T. Allen, Jackson Bldg.

N. C., Charlotte—Tranquil Realty Co., capital \$50,000, incorporated; John Q. Myers, 200 N. Tryon St.

N. C., Reidsville—Reidsville Cemetery Co., capital \$50,000, incorporated; F. B. Kemp, Reidsville.

N. C., Shelby—Wray Realty Co., capital \$30,000, incorporated; A. V. and George W. Wray.

Okla., Oklahoma City—See Water Works. Tenn., Memphis—City Park Comsn. build park on site of old Beale Ave. Market.

Tex., Brownsville—Penn-Tex Development Co., Francis Kowalski, interested, develop 500 acre citrus grove, has 4000 acre under option.

Va., Alexandria—Shady Brook Farms, Inc., capital \$50,000, incorporated; Wayne Kendrick.

Va., Norfolk—Grice & Co., Inc., chartered; A. P. Grice, Virginia Natl. Bank Bldg.

Va., Petersburg—Hartz & Rogers, Inc., chartered; W. O. Rogers, Waverly.

Va., Richmond—Maplewood Realty Corp., capital \$15,000, incorporated; W. A. Moncure, Jr., Atlantic Life Bldg.

Va., Roanoke—Snowden Park Corp., capital \$50,000, incorporated; R. R. Fairfax, Rosenberg Bldg.

Lumber Enterprises

Florida—Peavy-Wilson Lumber Co., Commercial Bank Bldg., Shreveport, La., reported, acquired 97,119 acres undeveloped timber land in Orange and Osceola counties; plans erecting mill at later date.

Mo., Halltown—Burson Lumber Co., incorporated; John O. Burson, Avilla.

Va., Petersburg—Hartz & Rogers, Inc., chartered; M. O. Rogers, Pres., Waverly.

W. Va., Henry—Potomac Lumber Co., Inc., chartered; Earl F. Pitts, Henry; Frank R. McKelvey, Hollidaysburg, Pa.

Mining

Tex., Marble Falls—Texas Pink Granite Co., Inc., capital \$100,000, chartered; Thomas and George D. Clarke.

Miscellaneous Construction

Alabama—Mississippi Warrior Service, Brown-Marx Bldg., Birmingham, suggest large lock and dam below No. 17 to eliminate 3 small locks near Tuscaloosa, costing approx. \$1,500,000; also plans one or two dams above Cordova and impounding dam at Warrior.

Ark., Pecan Point—U. S. Engr. Office, Memphis, let contract to W. P. McGeorge, Pine Bluff, for 1250-ft. pile dike near here; \$50,000.

D. C., Washington—District Comms., R. M. Brennan, Ch. Clk., let contract to Potomac Construction Co., 229 Ninth St. N. E., for reconstructing fire boat wharf and miscellaneous wharf repairs, Water St., S. W. 10-30

Fla., Miami Beach—City Council bids Dec. 3 for construction of bulkheading on south side of Surprise Waterway between Alton Rd. and King Cole Hotel; 239 lin. ft. existing sea wall to be removed; 94 cu. yd. conc., 948 lin. ft. timber piling, 411 tons boulder fill, 684 cu. yd. earth fill, 10 tie rods; Ed. R. Neff, City Engr.

La., Natchitoches—Dept. of Commerce, Bureau of Fisheries, Commr. of Fisheries, Washington, D. C., plans starting constructing fish hatchery in 30 to 60 days, including electric pumping equipment, water supply pipe lines, small buildings and considerable acreage of artificial ponds; probably let contract only for installing pumping equipment and other work to be done by local parties under direction of Const. Supt., Bureau of Fisheries. 11-20

La., New Orleans—Bd. of Comms. of Port of New Orleans let contract to B. N. Davis, 1006 Tchoupitoulas St., at \$50,546, for reconstructing dock at Mandeville St. wharf. 11-20

Mo., Dover—U. S. Engr. Office, Postal Telegraph Bldg., Kansas City, has low bid from Massman Construction Co., American Bank Bldg., Kansas City, at \$237,434, for 6180 lin. ft. pile clump dikes and 4800 lin. ft. standard revetment, Missouri River, Sheep's Nose Bend. 11-6

Missouri—U. S. Engr. Office, Postal Telegraph Bldg., Kansas City, opens bids Dec. 17 for constructing about 6600 lin. ft. standard revetment, Missouri River, Weaver's Bend, about 1.6 mi. from Wolcott, Kan. 11-20

Mo., Reeds Spring—Missouri Pacific R. R. Co., E. A. Hadley, Ch. Engr., St. Louis, let contract to A. Guthrie & Co., St. Paul, Minn., for filling 3 bridges near here, involving about 500,000 cu. yd. earth.

N. C., Kitty Hawk—Constructing Quartermaster, 2342 Munitions Bldg., Washington, D. C., opens bids Dec. 18 for Wright Memorial, Kill Devil Hill; Robert P. Rogers and Alfred E. Poor, Architects, 130 W. 42nd St., New York. 10-16

Okla., Oklahoma City—City, M. Peshek, Jr., Clk., may vote in December on \$240,000 bonds for incinerators.

Tex., Huntsville—State Game, Fish and Oyster Comsn., W. J. Tucker, Huntsville, soon take bids for \$50,000 fish hatchery.

Miscellaneous Enterprises

Ala., Ashville—Sam Sloan, Jr., Sebring, Ala., and Guy H. DeShazo, Atmore, Ala., reported, acquired Ashville Southern Aegis.

Ala., Birmingham—E. I. Dupont de Nemours & Co., headquarters Wilmington, Del., expending \$200,000 for rebuilding and expansion at plant at Mineral Springs; several spare units being built, duplicating present facilities; portion of plant built 4 yrs. ago will be rebuilt.

Ark.-Tex., Texarkana—Oates Building and Construction Co. low bidder at \$37,400 on bakery for Butter-Nut Bread Co.; 2 stories, 75x35 ft., rein. conc. and brick; Witt, Selbert & Halsey, Architects, Texarkana Natl. Bk. Bldg.

Fla., Tampa—Plant Implement Co., capital \$100,000, incorporated; J. S. Gale, 5402 Central Ave.

Ky., Louisville—High Rock Ginger Ale Co., 709 S. Fifteenth St., constructing addition to plant.

La., Shreveport—Merger, reported, of American Engineering and Construction Co. and P. M. Davis & Co., under name of American Engineering and Construction Co.

Md., Baltimore—Sound Amusement Corp. of America, 302 N. Eden St., chartered; Ralph F. Frazier, Martin Dorman.

Md., Baltimore—Fulton Family Laundry let contract to J. Raymond Gerwig, 213 St. Paul St., for boilerhouse and coal bin, 1700 McHenry St.

Md., Westport, Baltimore—Carr-Lowery Glass Co., erecting addition to plant; 1 story; steel and conc.; cost \$20,000; West Construction Co., Knickerbocker Bldg., Bldrs.

Miss., New Albany—Tupelo Garment Co., Tupelo, reported, improve plants Tupelo, New Albany and Booneville.

Mo., Independence—American Black Walnut Products Co., chartered; A. E. Smalley, Independence; F. X. Brunner.

Mo., Kansas City—Steel Products Co., Inc., 612 E. 18th St., increased capital \$50,000 to \$150,000.

Mo., Kansas City—Liberty Garment Co., Broadway south of Twenty-first St., install 100 additional machines; manufacture wash dresses.

Mo., Kansas City—Melkin-Lipert Fur Co., 319 W. Ninth St., establish factory for manufacture fur products.

Mo., St. Joseph—Missouri Valley Silver Fox Co., capital \$75,000, incorporated; J. T. Riordan, 1924 S. Ninth St.

Mo., St. Louis—Inland Waterways Corp., Maj. Gen. T. Q. Ashburn, Chmn. of Bd., 1016 Munitions Bldg., Washington, contemplates constructing 3 or 4 towboats of stern wheel type capable of operating either on Upper Mississippi, Missouri or Illinois rivers, and 50 new barges; 20 barges to follow style of present open type barges except they will not carry oil; will be of 3000 tons capacity, 300 ft. x 40 x 10 ft.; 30 barges, of practically same style as 600 series now in use, will be designed to carry 2000 ton load in 9-ft. channel and 1000 ton load in 6-ft. channel; also contemplate building track barge with 30-car capacity; now have under construction 2200-h. p. Diesel towboat Herbert Hoover, to be completed April, 1931; new work, reported, involves \$5,000,000 expenditure.

Mo., St. Louis—Empire Publishing Corp., incorporated; R. J. Wuest, 10 S. Lyle St.

Mo., St. Joseph—Frog Hop Amusement Co., capital \$50,000, incorporated; Clarence Stelzer, R. F. D. 4.

Mo., St. Louis—Progressive Publishing Co., capital \$100,000, incorporated; Alroy S. Phillips, Pierce Bldg.

Mo., St. Louis—County Utilities, Inc., chartered; Charles F. Schokmiller, 2632 Terrace Lane.

N. C., Durham—American Tobacco Co., 111 Fifth Ave., New York, reported, rebuild burned warehouse at cost of \$100,000.

N. C., Goldsboro—Big Brick Warehouse Co., capital \$100,000, incorporated; A. J. Bray, H. T. Carraway.

N. C., Greensboro—City, I. C. Brower, City Mgr., reported, let contract to Moser & Burgess, for 1 story, struc. steel frame shop building; tar and gravel roof.

Okla., Oklahoma City—Fluid Packed Pump Co., 29th and Santa Fe Sts., let contract to H. Reynolds, 636 E. Seventh St., at \$45,000 for 2 story and basement, brick plant.

S. C., Anderson—William Prescott Allen, Americus, Ga., and G. Paul Browne and R. P. Browne acquired Anderson Daily Mail.

Tenn., Bruceton—Rainbow Products Co., A. E. McDaniel, Mgr., plans installing equipment for additional products; manufactures extracts.

Tenn., Columbia—Washington Mfg. Co., 333 Fifth Ave., N. Nashville, Tenn., reported, acquired plant and equipment of Tufnut Garment Co., 312 Rock St., Little Rock, located at Columbia.

Tenn., Nashville—Dixie Life and Accident Insurance Co., 110 Gallatin Road, changed name to Dixie-Atlas Republic Insurance Co., and increased capital, \$250,000 to \$500,000.

Tex., Houston—University Publishing Co. of West University Place, incorporated; W. R. Morin, 2902 Morrison St.

Tex., Houston—La Salle Laundry of Houston, Inc., capital \$30,000, chartered; W. C. Ragan, 818 Woodland St.

Tex., Houston—Continental Wirebound Box Co., Maury Ave. and Campbell St., erect 1 story, galv. iron clad factory addition; cost \$14,000.

Tex., Houston—General Machinery Co., Inc., chartered; L. C. Doney, Jr., 2522 Calumet St.

Tex., Houston—Harris Cream Top Milk Co., erect hollow tile and conc. addition to plant at 300 D'Amico St.; cost \$20,000.

Tex., McAllen—Grisham Ice Cream Co., San Benito, reported, acquired equipment of Snow-Queen Ice Cream Co., Brownsville; will remove to McAllen; and operate.

Tex., Santa Anna—Santa Anna Glass Co., reported, plans establishing \$100,000 glass manufacturing plant.

Va., Hampton—New Big Boy Co., Inc., capital \$25,000, chartered; C. B. Gunter; manufacture soft drinks.

Va., Norfolk—Attucks Amusement Co., Inc., capital \$50,000, incorporated; Abraham E. Lichtman, 1613 Harvard St., N. W., Washington, D. C.

Va., Norfolk—Orkin Exterminating Co., Inc., chartered; Elwood Orkin, 2227 Rosewood St., Richmond.

Va., Portsmouth—L. H. Rogers, Inc., Virginia Natl. Bank Bldg., Norfolk, construct 3 sheet metal units warehouse to be located on Southgate Terminal property; reported, construct total of 40 warehouses, on both Norfolk and Portsmouth sides of river.

Va., Richmond—L. H. Jenkins, Inc., (Book Mfrs.), W. Broad St., reported, received low bid from Harry B. Graham Construction Co., Mutual Bldg., for addition to plant.

W. Va., Parkersburg—Parkersburg Insulating Co., incorporated; L. F. Kellogg, Emerson Ave.

Pittsburgh Plate Glass Co., Pittsburgh, Pa., and American Cyanamid Co., 535 Fifth Ave., New York City, plan alliance for the development of certain chemical products now manufactured by the companies separately; plan erection in the South, location not decided, of new soda ash and caustic soda plant on tidewater.

Motor Bus Lines and Terminals

Ala., Birmingham—Dixie Stage Lines, Inc., applied to Alabama Public Service Comsn., Montgomery, for permission to sell and convey to Dixie Coach Lines all rights and privileges for operating bus line between Birmingham and Anniston.

Ga., Atlanta—Candler Interests awaiting approval by Georgia Public Service Comsn. of plans by Hentz, Adler & Schutze, Archts., 1330 Candler Bldg., for bus terminal, Carnegie Way and Ellis St., for Southeastern Greyhound Lines, Inc.; entrance on Ellis St., 24 ft. wide, on Carnegie Way, 30 ft. with double driveway both ends; 1-story; cover 10,800 sq. ft.; building will contain restaurant, barber shop, shower baths, rest rooms, etc.; cost \$60,000.

Ga., Macon—Southeastern Greyhound Lines, Inc., 365 Cherry St., reported, plans union bus terminal in downtown section; cost \$25,000.

Md., Baltimore—Chester Valley Bus Lines, Inc., 1401 Baltimore Trust Bldg., chartered; Albert Gustav Bauer, Albert Samuel Roebuck, both Philadelphia, Pa.

Md., Baltimore—Anderson Motor Co., A. D. Anderson, 1636 Edmondson Ave., construct gasoline service station, 2118 Edmondson Ave.; 1 story; brick.

Mo., Sedalia—Bertman Ship-By-Truck, Inc., capital \$50,000, incorporated; Abe Bertman, 1215 S. Barnett St.

N. C., Greensboro—Eastern Air Transport, Inc., L. S. Harding, Operations Mgr., 225 Broadway, New York, reported, convert 2 buildings into passenger station for lines.

Okla., Tulsa—Union Transportation Co., J. A. Frates, Pres., 322 S. Cheyenne St., reported, construct bus garage building; brick, hollow tile and conc., 1 story, 128x249 ft.; Joe Stone, Archt., 1624 N. Lewis St., Tulsa.

Tex., Corpus Christi—L. A. Hanks has contract for warehouse on Caldwell St. for Red Arrow Freight Lines, 10th and Laredo Sts.; Gordon Wells, Archt.

Va., Roanoke—Pocahontas Transportation Co., capital \$25,000, incorporated; Carroll R. Woods, Whitethorn St., Bluefield, W. Va.

W. Va., Charleston—Amick's Auto Service, Quarrier and Dunbar Sts., incorporated; R. A. Amick, New Kanawha Valley Bank Bldg.

Railways

Mo., St. Louis—Missouri-Kansas-Texas R. Co., M. H. Cahill, Pres., authorized by Interstate Commerce Comsn., Washington, to expend \$500,000 for immediate repairs to equipment.

Texas—Atchison, Topeka & Santa Fe Ry., M. J. Collins, Gen. Pur. Agt., Chicago, Ill., reported, authorized purchase of over 1500 freight cars, 18 gas-electric motor cars and other equipment in 1931; purchase of following has been authorized: 2 cafe-lounge cars; 10 horse-express cars; 18 gas-electric motor cars, 1000 single sheath box cars, 100,000 lb. capacity; 100 refrigerator cars, 100,000 lb. capacity; 400 refrigerator cars, 80,000 lb. capacity; 22 all-steel caboose cars and 10 all-steel drovers.

Roads, Streets and Paving

In connection with LAND DEVELOPMENT large sums are expended for roads, streets, paving and sidewalks. Details will be found under that classification.

Proposed Construction

Alabama—State Highway Comsn., Woolsey Finnell, Director, Montgomery, opens bids Dec. 17 or 26.96 mi. conc. paving, grading, draining, Mobile to Citronelle, 270,350 sq. yd. paving, 34,000 cu. yd. excavation, 125,000 cu. yd. jetting fills, 28,000 lin. ft. guard rail, 20,000 lin. ft. raised edge curb, 40 conc. spillways, 3800 lin. ft. conc. curb and gutter, 9000 lb. rein. steel, F. A. P. 206-B.

Ala., Birmingham—City, Eunice R. Hewes, City Clk., opens bids Dec. 2 for 2 paving projects, 900 cu. yd. borrow excavation, 2780 sq. yd. conc. paving, 300 sq. yd. sidewalk, 1000 lin. ft. conc. curb, 50 lin. ft., 3 ft. 6-in. brick sewer, 60 lin. t. 24-in. conc. or terra cotta pipe, 60 sq. yd. brick track paving.

Ala., Birmingham—City, A. J. Hawkins, City Engr., passed ordinances for paving Georgia road, costing \$100,000.

Ala., Mobile—City, Bd. of Commrs., open bids Dec. 9 for paving: Group 1—5570 sq. yd. 1½-in. sheet asphalt wearing surface, 5570 sq. yd. 1½-in. Alabama rock asphalt wearing surface, 500 tons black base, 300 lin. ft. relining granite curbing; Group 2—7860 sq. yd. 1½-in. sheet asphalt wearing surface, 7860 sq. yd. 1½-in. Alabama rock asphalt wearing surfacing; 7860 sq. yd. 2-in. Warrentite bitulithic wearing surfacing 786 tons black base on sheet asphalt and Alabama rock asphalt, 590 tons black base on Warrentite Bitulithic—1700 sq. yd. extra 4-in. conc. base; Group 3—38,693 sq. yd. 1½-in. sheet asphalt wearing surface, 38,693 sq. yd. 1½-in. Alabama rock asphalt wearing surface, 38,693 sq. yd. 2-in. Warrentite bitulithic wearing surface, 5807 tons black base on sheet asphalt and Alabama rock asphalt, 3830 tons black base on Warrentite bitulithic, 24,612 lin. ft. 5 x 18-in. conc. curbing, 2865 sq. yd. 4 x 15-in. conc. gutters, 1410 sq. yd. extra 4-in. conc. base; 41,558 sq. yd. 2½-in. brick surface, 24,612 lin. ft. 5 x 18-in. curbing, 3002 sq. yd. 4-in. conc. base; 1044 tons black base, 1410 sq. yd. extra 4-in. conc. base; Group 4—83,350 sq. yd. 1½-in. sheet asphalt wearing surface, 83,350 sq. yd. 1½-in. Alabama rock asphalt wearing surface, 83,350 sq. yd. 2-in. Warrentite bitulithic wearing surface, 12,616 tons black base on sheet asphalt and Alabama rock asphalt, 10,513 tons black base on Warrentite bitulithic, 201 sq. yd. 4-in. conc. base, 15,341 lin. ft. 5 x 18-in. conc. curbing, 4814 lin. ft. relining granite curbing; 7383 sq. yd. 4 x 15-in. conc. gutters, 5040 sq. yd. extra 4-in. conc. base; Group 5—14,633 sq. yd. 6-in. one course conc.; 100 lin. ft. 5 x 18-in. conc. curbing; Group 6—17,073 sq. yd. 5½-in. Amesite paving, 1560 sq. yd. 6 x 15-in. conc. gutters, 100 lin. ft. 5 x 18-in. conc. curbing; Group 7—23,777 cu. yd. 6-in. one course conc., 14,476 lin. ft. 5 x 18-in. conc. curbing, 3026 cu. yd. excavation; Wright Smith, City Engr.

Ark., Jonesboro—Street Improvement Dist. No. 37, Bd. of Commrs. plans grading, draining, curbing, guttering, paving several streets costing \$28,469; Guy W. Cobb, Engr., American Bank Bldg.

Ark., Little Rock—Street Improvement Dist. No. 517, Bd. of Commrs., H. S. Turner, Fred W. Perkins and L. R. Woods, formed to pave about 7 blocks, 15th and Allis St., \$10,000; E. E. Stansberry, City Engr.

La., Lake Charles—City Comsn., and Mississippi Pacific R. Co., E. A. Hadley, Ch. Engr., St. Louis, Mo., have low bid from Barber Bros. Construction Co., Bogalusa, at \$19,420, for approx. 783 sq. yd. 6-in. rein. conc. paving, Front St.

La., Montgomery—Village, R. O. Lang, Mayor, and Aldermen, opens bids Dec. 1 for conc. paving, Caddo St.

Louisiana—State Highway Comsn., O. K. Allen, Chmn., Baton Rouge, opens bids Dec. 16 for 0.7 mi. emergency grading, gravel surfacing, emergency levee highway, St. James Parish, Proj. L-30, Route 30, Wagnespark No. 2 Highway.

La., Slidell—City considering 14 blocks asphalt paving.

La., Tallulah—Madison Parish Police Jury opens bids Dec. 3 for 11 mi. graveling, Trinidad-King-Afton road; P. O. Benjamin, Sec. Engr. in charge.

Maryland—State Roads Comsn., L. H. Stewart, Sec., Baltimore, has low bids for 2 road and 4 bridge projects; Frederick County—substructure over Monocacy River,

Buckeystown Pike (Furnace Ford bridge), Cont. F-142-57, Whiting-Turner Construction Company, Sewart Building, Baltimore, \$20,250; super-structure for same, Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa., \$37,140; Baltimore County—bridge at Bare Hills, Falls road over tracks of Pennsylvania R. R., Mullan Contracting Co., 3945 Greenmount Ave., Baltimore, \$95,796; bridge at north end of Cockeysville grade elimination over Beaver Dam Run, Cont. B-161-43, Harry T. Campbell Sons Co., Towson, \$17,705; Prince Georges County—0.6 mi. conc. side-walks through Hyattsville, Baltimore-Washington Blvd., Cont. P-145-311, A. C. Conway, Savage, \$3587; Dorchester-Wicomico Counties—bridge approaches over Nanticoke River, Vienna, Cont. D-68-17, Lonie Slacum, Cambridge, \$50,337. (See Bridges, Culverts and Viaducts, 10-30, and Roads, Streets and Paving, 11-6.)

Miss., Bay St. Louis — Hancock County Highway Comms., plan hardsurfacing Old Spanish Trail; will build guard rail and iron mesh along Honey Island Route for 5 mi. east of state line.

Miss., Grenada—City, Mayor and Bd. of Aldermen, opens bids Dec. 1 for curbing, guttering, storm-sewering and paving, Commerce St. and S. Commerce St., Highway 51; W. E. Johnson, Engr.

Miss., Meridian—City Council, W. H. Owen, Mayor, considering street paving program.

Missouri—State Highway Comsn., T. H. Cutler, Ch. Engr., Jefferson City, opens bids Dec. 2 for 50 roads and 37 bridges, involving about \$2,500,000.

In Adair County—4.506 mi. shale, Novinger North, 36,080 cu. yd. excavation, 41,700 lb. struc. steel, 5219 cu. yd. paving; bridge over Shut-Eye Creek, 49-ft. and 2 31-ft. I-beams, SC-1; Mercer County—2.606, 3.409 mi. 24-ft. graded earth, Modena-Mill Grove, 46,939 cu. yd. excavation, 9260 lb. struc. steel, 3 bridges over slough, over Soap Creek and Willow Branch, SD-1, SD-2; Putnam County—3.665, 3.125 mi. gravel, Hartford-Martinstown, 21,295 cu. yd. excavation, 6053 cu. yd. paving, SC-1, SC-2; Sullivan County—1.973 mi. gravel, Reger-Route 5, 108,009 cu. yd. excavation, 218,000 lb. struc. steel, 2471 cu. yd. paving; bridge over Big Locust Creek, 9-35-ft. I-beams, 1-80-ft. truss, 330-D; Audrain County—1.981 mi. gravel, Sturgeon north, 1370 cu. yd. excavating, 1891 cu. yd. paving, SY-1; Clark County—4.565 mi. sand-clay, Route 4-Wyaconda, 15,296 cu. yd. excavation, 92,560 lb. struc. steel, 3591 cu. yd. paving; 2 bridges over branch and South Wyaconda River Drainage Ditch, SA-1.

In Knox County—4.084, 1.763 mi. gravel, Route 15-Shebel County, 14,798 cu. yd. excavation, 23,320 lb. struc. steel, 5551 cu. yd. paving; bridge over North River, 3-21-ft. 1-41-ft. I-beams; bridge over North River, 1-31-ft., 2-25-ft. I-beams, SH-1, SN-1; Lewis County—2.652, 3.523 mi. gravel, La Belle south, 10,971 cu. yd. excavation, 70,020 lb. struc. steel, 5769 cu. yd. paving; bridge over Troublesome Creek, 3-27-ft., 2-41-ft. I-beams, SD-1, SD-2; Lincoln County—1.276 mi. 40 and 20-ft. conc., through Troy, 33,487 cu. yd. excavation, 10,973 sq. yd. paving; bridge over Town Branch, 47-31, 2,637, 2,615 mi. gravel, Route 61-Silex, 10,505 cu. yd. excavation, 55,270 lb. struc. steel, 4997 cu. yd. paving; I-beam bridge over Mill Creek, SE-1, SE-2.

In Pike County—2.102, 4.297 mi. gravel, Ashley south, 14,677 cu. yd. excavation, 107,900 lb. struc. steel, 5952 cu. yd. paving, 2 I-beam bridges over Culver River and branch, SA-3, SA-4; Scotland County—3.054, 3.358 mi. sand-clay, Route 4-Gorin, 15,331 cu. yd. excavation, 54,100 lb. struc. steel, 2645 cu. yd. paving, I-beam bridges over Culver River and Allen Branch, SA-1, SA-2; Henry County—2.527 mi. 30-ft. graded earth, Leeton-Windsor, 33,349 cu. yd. excavation, 2 bridges over Jim Creek and East Tabo Creek, 2-5; Johnson County—2.453 mi. 30-ft. graded earth, Leeton-Windsor, 21,900 cu. yd. excavation, 2-3; Lafayette County—2.642, 4.152 mi. 36-ft. graded earth, Lexington-Waverly, 125,960 cu. yd. excavation, 332B, 332D; Cooper County—4.979, 4.848, 1.619 mi. crushed stone, Booneville-California, 54,479 cu. yd. excavation, 107,900 lb. struc. steel, 10,831 cu. yd. paving, I-beam bridge over Clarks Fork Creek, SD-2, SD-3, SJ-1.

In Gasconade County—4.240, 3.721, 3.548 mi. 20-ft. conc., Mt. Sterling-Drake, 125,103 cu. yd. excavation, 139,677 sq. yd. paving, widening 20-ft. slab bridge over Silt House Branch, 326-A, 326-B, 326-C; Iron County—0.631 mi. gravel, Arcadia, 8385 cu. yd. excavation, 70-1; St. Louis County—0.856 mi. 40-ft. conc., Penn. Ave., 31,784 cu. yd. excavation, 22,451 sq. yd. paving, 61TR-84; Washington County—4.168 mi. gravel, Potosi west, 65,457 cu. yd. excavation, 3 bridges over branches, 8-11; Cedar County—0.405 mi. gravel, Eldorado Springs-Stockton, 19,106 cu. yd. excavation, 162,250 conc. in bridges; bridge over Cedar Creek, 4-40-ft. I-beams,

110-ft. truss, 64-5A; McDonald County—4.914 mi. gravel, Route 44-Powell, 17,477 cu. yd. excavation, 37,330 lb. struc. steel I-beam bridge over Kings Creek.

In Dallas County—4.795 mi. gravel, Buffalo-Long Lane, 10,488 cu. yd. excavation, 2814 cu. yd. paving, SA-2; Stone County—4.981, 4.684 mi. gravel, Cassville-Galena, 138,106 cu. yd. excavation, 9199 cu. yd. paving, deck girder bridge over Dry Creek, 329G, 329H; Taney County—3.190, 3.317, 3.157 mi. crushed stone or gravel, Kisse Mills-Ozark County, 26,934 cu. yd. excavation, 6543 cu. yd. paving, bridge over Rocky Ford Branch, SC-1, SC-2 SC-3; Dent County—0.647 mi. gravel, Salem south, 4331 cu. yd. excavation, 19-20; 2.848 mi. gravel, Salem-Crawford County, 34,760 cu. yd. excavation, 3602 cu. yd. paving, 19-14; 0.666 mi. gravel, Salem north, 19,448 cu. yd. excavation 1122 cu. yd. paving, 2 bridges over Spring Branch, 19-18; 4.301 mi. gravel, Salem-Iron County, 75,396 cu. yd. excavation, 4050 cu. yd. paving, 2 bridges over Huzzah Creek and Barney Creek, 32-14; Douglas County—4.854 mi. gravel, Ava-Howell County, 4516 cu. yd. paving, 14-26A.

In Shannon County—2.667, 1.594 mi. 20-ft. graded earth, Eminence east, 47,611 cu. yd. excavation, 43,300 lb. struc. steel, I-beam bridge over Big Shannon Creek, SC-1, SC-2; Texas County—3.125, 4.812 mi. 24-ft. graded earth, Licking-Success, 7085 cu. yd. excavation, SA-4, SA-5; Wright County—2.537 mi. 24-ft. graded earth, Hartville-East, 15,034 cu. yd. excavation, 2 bridges over Evening Shade Creek and over branch, SB-1; Bollinger County—0.011 mi. bridge west of Lutesville, over Gimlet Creek, raising and widening 60-ft. truss, 34-M22; Dunklin County—3.929 mi. gravel, St. Francis-Campbell, 62,032 cu. yd. excavation, 4954 cu. yd. paving, bridge over Turkey Creek.

Mo., St. Louis—City, Bd. of Public Service, plans recut granite block and asphalt paving, widened Gravois Ave.

Okl., Oklahoma City—City, E. M. Fry, City Mgr., will let contract to Earl W. Baker Co., Perrine Bldg., at \$2.15 per yd. for 7-in. conc. slab, widening Hudson Ave.; 14 ft. of pavement to be added to each side of section now paved.

South Carolina—State Highway Comsn., C. E. Jones, reported, will let contracts before Dec. 25 for paving involving \$4,000,000 to \$5,000,000.

South Carolina—State Highway Comsn., Ben M. Sawyer, Ch. Commr., Columbia, opens bids Dec. 2 for 10 roads, involving approx. \$900,000; Saluda-Newberry Counties—2.965 mi. top soiling, Route 10, being approaches to Saluda River bridge, 88,243 cu. yd. excavation, 8266 cu. yd. top soil surfacing, 500 tons rip rap, S. P. 717-A and B; Chesterfield County—11.533 mi. grading, Route 9, Cheraw to Chesterfield, 82,571 cu. yd. excavation, 49,962 lb. rein. steel, 820 lin. ft. corrugated metal pipe, 1854 lin. ft. rein. conc. pipe, 400 tons rip rap, S. P. 720-A; 18,733 mi. top soiling, Route 9, Chesterfield to Pageland, 77,535 cu. yd. excavation, 27,934 cu. yd. top soil, 29,203 cu. yd. sand clay surfacing, 20,647 lb. rein. steel, 1487 lin. ft. corrugated metal pipe, 4323 lin. ft. rein. conc. pipe, S. P. 720-B; Colleton County—5.657 mi. surfacing with clay gravel in preparation for surface treatment, Route 64, intersection with U. S. Route 21 at Bells Cross Roads to intersection with State Route 641, 82,869 cu. yd. excavation, 3249 cu. yd. clay gravel surfacing in place, 22,718 lb. rein. steel, 921 lin. ft. rein. conc. pipe, S. P. 574-A reopened; Oconee County—4.42 mi. clay bound macad. surfacing, Route 18, Long Creek to Georgia line, 125,426 cu. yd. excavation, 46,908 sq. yd. 18-ft., 2-in. clay bound macad. surfacing, 25,086 lb. rein. steel, 1422 lin. ft. rein. conc. pipe, S. P. 635-C; Newberry County—7.442 mi. top soiling in preparation for surface treatment, 74,157 cu. yd. excavation, 23,483 cu. yd. top soil surfacing, S. P. 793; Clarendon-Williamsburg Counties—13.447 mi. sand clay surfacing in preparation for surface treatment, 130,298 cu. yd. excavation, 38,568 cu. yd. sand clay surfacing, 44,957 lb. rein. steel, 3342 lin. ft. rein. conc. pipe, 150 tons rip rap, S. P. 762-A and B; Spartanburg-Greenville Counties—21.106 mi. grading, U. S. Route 176, Haynes to N. C. line, 375,000 cu. yd. excavation, 82,965 lb. rein. steel, 7479 lin. ft. rein. conc. pipe, S. P. 305 and 14 reopened; Lancaster-Chester Counties—4.398 mi. top soiling in preparation for surface treatment, Routes 93 and 97, Nitrolee toward Lancaster and from Nitrolee to Kilgore's Store, 114,778 cu. yd. excavation, 13,496 cu. yd. soil surfacing, 20,076 lb. rein. steel, 847 lin. ft. rein. conc. pipe, S. P. 796-A and 696-A; Kershaw County—18.066 mi. sand clay surfacing in preparation for surface treatment, Route 97, Camden to Liberty Hill, 349,704 cu. yd. excavation, 43,034 cu. yd. top soil surfacing, 1420 cu. yd. class "A" and class "B" concrete, 124,414 lb. rein. steel, 4509 lin. ft. rein. conc. pipe, 2000 tons rip rap, S. P. 758.

Tenn., Chattanooga—City, Roger Crox, Commr., and Hamilton County, Will Cummings, County Judge, plans starting widening Broad St., Main to 28th, about Jan. 1.

Tenn., Memphis—City Council authorized paving Camilla St.; \$20,992.

Texas—Road work for which bids will be received by State Highway Comsn., Gibb Gilchrist, Engr., Austin, Nov. 29 and Dec. 1, reported, will involve \$2,400,000. 11-20

Tex., El Paso—City, R. E. Thomason, Mayor, let contract Dec. 4 for paving Kentucky and Alabama St., 2 projects to aggregate \$30,000; plans paving Bryon St., \$20,000.

Tex., Knoxville—Kerr County voted \$450,000 paving bonds.

Tex., San Antonio—City, I. Ewig, City Engr., has low bid from Krusch & Lanham for improving Alamo Street and Josephine Street. 11-13

Tex., San Antonio—City, James Simpson, City Clk., opens bids Dec. 1 for grading, paving, curbing, Becker St. and Vance St., 1½-in hot rock asphalt, 1½-in Warrenite bitulithic or 1½-in. cold rock asphalt.

Tex., Uvalde—Uvalde County considering voting on \$175,000 bonds for County's part in draining and grading, Highway 4 north of City to Real County line.

Virginia—State Dept. of Highways, C. S. Mullen, Ch. Engr., Richmond, opens bids Dec. 9 for 2 roads: Wythe County—1.3 mi. macad., 30,098 cu. yd. excavation, 7827 lb. rein. steel, 11,933 sq. yd. macad., Route 15, Proj. F111AG; Accomac County—5.7 mi. grading, draining, 33,768 cu. yd. excavation, 2809 lb. rein. steel, Route 520, Proj. S689A.

Contracts Awarded

Alabama—State Highway Comsn., Woolsey Finnell, Director, Montgomery, let contracts for road and 2 bridge projects: Lowndes County—bridge between Davenport and Letohatchie, Ed Pettus, Montgomery, \$2479; Marion County—bridges on road, Hackleburg to Hamilton, H. N. Donahoe, 510 N. 21st St., Birmingham, \$55,188; road work, State Bd. of Administration, Montgomery, \$157,790.

Alabama—State Highway Comsn., Woolsey Finnell, Director, Montgomery, let contract to A. J. Brown, Jasper, for 10.30 mi. sand clay and pea gravel surfacing, Foley to Gulf, at \$42,872. 10-23

Arkansas—State Highway Comsn., C. S. Christian, Engr., Little Rock, tentatively let contracts for 2 roads and 37 bridges involving about \$553,000.

In Monroe County—3½ mi. grading, draining, State Highway 3, Job No. 139, J. G. Newkirk, Roland, \$46,105; White County—4 bridges, 440 lin. ft., rein. conc. and struc. steel, State Highway 67, No. 584, Fred Luttjohann, Topeka, Kan., \$30,203; Hot Spring-Saline Counties—9 rein. conc. deck girder bridges, State Highway 76, No. 692, Altman-Rogers Co., Cotton-Grain Exch. Bldg., Oklahoma City, \$60,914; Clark County—8 bridges, rein. conc. struc. steel, Highway 51, No. 3127, Altman-Rogers Co., \$110,132; Lonoke County—6 bridges, 751 lin. ft., rein. conc., steel, timber, State Highway 2, No. 6115, Altman-Rogers Co., \$43,616.

In Union County—4 bridges, 983 lin. ft., conc., steel, timber, State Highway 2, No. 7120, Gauger-Korsmo Construction Co., Fidelity Bank Bldg., Memphis, Tenn., at about \$52,000; 7½ mi. grading, draining and 6 mi. conc. paving, State Highway 167, No. 7149, Altman-Rogers Co., \$95,851; Bradley County—2 bridges, 349 lin. ft., treated timber pile bent, State Highway 8, No. 7150, J. B. Beaver, Benton, \$9811; Johnson County—154-ft. treated timber framed bent bridge with conc. decks, over Greenbrier Creek, State Highway 64, No. 8149, Rye Bros., Russellville, \$5254; Madison County—230-ft. timber and steel bridge over Henderson Creek, State Highway 23, No. 9115, Altman-Rogers Co., \$10,237; St. Francis County—2 bridges, rein. conc., over L'Angeuille River and Relief Slough, State Highway 70, No. 11,026, Altman-Rogers Co., \$70,176. 11-6

Florida—State Road Dept., R. W. Bentley, Chmn., Tallahassee, let contract to R. G. Lassiter Co., Barnett Bldg., Jacksonville, at \$100,536, for surface treating, Road 3, Duval County.

Fla., Miami Beach—City, Ed. R. Neff, City Engr., let contract to D. V. Godwin, 120 N. W. 34th St., Miami, for sidewalks, 27th St. and Flamingo Park. 11-13

La., New Orleans—City, Bryson Vallias, Engr., let contracts on following streets: Burdette, Derbigny, Desire, Desoto, Leharpe, Lowerline, Roman, Spain, St. Andrew, St. Philip, Thalia, Toulouse, Vallette; subsurface let to H. P. & J. F. Egan; paving to Southern Uvalde Rock Asphalt Co., New Orleans

Bank Bldg., and Craven & Lang, 2500 Poydros St.; footwalks let to Jules Saunee, 3339 St. Claude St.; B. C. Grasser & Co., Maritime Bldg.; M. J. Flynn, Globe Construction Co., Louisiana Bldg., and Louisiana Construction Co.

Miss., Gulfport—City, Mayor and Bd. of Commrs., let contract to Eller & Olsen, Cotton States Bldg., Nashville, at approx. \$24,500 for resurfacing and repairing 15th St.; George P. Hopkins will be awarded sub-contract for cement work; H. D. Shaw, City Engr. 11-13

Miss., Vicksburg—City, S. S. Patterson, Clk., let contract to V. T. Zollinger, Shreveport, La., at \$1.98 per sq. yd. for 11,845 squares conc. paving and 75 cents per lin. ft. for 8300 lin. ft. combination curb and gutter on several streets. 11-13

Mo., Clayton, St. Louis—St. Louis County Highway Dept., Roy Dablousky, County Engr., will let contract to John Dillon, 2358 Tennessee St., St. Louis for 9571 ft. 14-ft. gravel, Vance road. 11-13

Mo., Clayton, St. Louis—St. Louis County, Roy Jablonsky, Highway Engr., let contracts for 4 roads: ¼ mi. 20-ft. conc. paving, Jennings Station road, J. Steuby, 473 S. Van Buren St., Kirkwood, \$723; 1900 ft. conc. grading, paving, Lockwood Ave., Webster Groves, C. M. Berry Construction Co., 2732 Sutton Ave., Maplewood, \$14,704; 1317 ft., North and South roads, Brentwood, Ansbor & Maguire, Title Guarantee Bldg., St. Louis, \$21,914; 9135 ft., Tresson Ferry road, Flinn Paving Co., 1405 S. First St., St. Louis, \$53,671.

Mo., St. Louis—City, Bd. of Public Service, let street work contracts: Berthold St., Carlo Motor Service Co., 4126 Olive St., \$5752; Newstead and Oriole Ave., J. T. McMahon, 4606 Moraine Ave., \$3986 and \$867, respectively. 10-30

Okla., Oklahoma City—City, M. Peshek, Jr., Clk., let contracts for paving in Nicholas Hill Addition; 9 blocks, Tedford Way, 20 ft., and 14 blocks, Huntingdon Dr., 24 ft., Connelly Bros., El Reno, \$28,013 and \$35,235, respectively. 10-30

Okla., Oklahoma City—City, Geo. F. Brown, Engr., let contracts for paving: California Ave., Western Paving Co., Petroleum Bldg., \$41,136; S. 44th St., Baum Construction Co., \$14,351; 31st St., M. A. Swatek, 519½ W. Main St., \$4915; 15th St., M. A. Swatek, \$5015; S. 28th St., Baum Construction Co., \$7843.

Okla., Tulsa — Tulsa County, J. Floyd Frazier, County Engr., let contract to Western Paving Co., Petroleum Bldg., Oklahoma City, at \$124,863 for paving Proj. 2231, A. B. and C. 12 mi., 20 ft. wide, E. G. St.

Tex., Fort Worth—City, O. E. Carr, City Mgr., let contract for paving widened Henderson St.; first section, Pennsylvania to Daggett Ave. south end of Henderson underpass, West Texas Construction Co., 501 E. Rosedale St., \$8209; north end of underpass to W. Fifth St., Thurber Construction Co., Fort Worth Natl. Bldg., \$17,832; Fifth St. to N. Henderson St. bridge, West Texas Construction Co., \$34,819; D. L. Lewis, City Engr. 11-6

Tex., San Antonio—Bexar County, W. S. Goodman, County Engr., let contract to Uvalde Rock Asphalt Co., Frost Natl. Bank Bldg., at \$10,747, for 4.17 mi. asphalt topping and patching, Palto Alto road. 11-20

Sewer Construction

Sewer construction in LAND DEVELOPMENT projects involves the expenditure of large sums of money. Under that classification details of these improvements are reported

Ala., Mobile—City, Wright Smith, Engr., receives bids Dec. 9 for sewers. See Want Section—Bids Asked.

Fla., Miami Beach—Claude A. Renshaw, City Mgr., reported, will have estimates completed soon for installation storm sewers between Lincoln Rd. and Fifth St. west of Washington Ave.

Fla., Miami—City, C. S. Nicholls, Engr., soon ask bids for 10-in. terra cotta or conc. sanitary sewer, S. W. Fifth St., from 19th to 22nd Aves.

Ky., Louisville—Jno. J. Quinn Co., 2425 Lexington Rd., has contract at \$115,321 for sewer construction; W. M. Caye, Engr., 400 M. E. Taylor Bldg.

Ky., Louisville—George M. Eady Co., 340 Byrne St., Louisville, has contract for sewer construction; W. M. Caye, Tech. Engr., 400 M. E. Taylor Bldg. 10-30

Ky., Winchester—City receives bids Dec. 5 for completion of storm and sanitary sewer system; \$180,000 bonds available. 11-20

Md., Baltimore—City, Milton J. Ruark, Sewage Engr., plans constructing storm water drains and sanitary sewers Cabin Branch and Southern Ave.

Md., Baltimore—Angelozzi Constr. Co., Everall and Mayberry Aves., has contract for Storm Water Contr. No. 158. 11-20

Md., Baltimore—Ryan Construction Co., 1600 Walnut St., Philadelphia, Pa., low bidder at \$92,397 for sewers, Sanitary Contr. No. 271.

Md., Baltimore—Angelozzi Construction Co., Everall and Mayberry Aves., has contract at \$77,047 for storm water drain Frederick Rd. between Beechfield Ave. and western city limits. 11-20

Mo., Charleston—W. L. Dyer, Edwards-ville, Ill., has contract for laying pipe lines and manholes; L. T. Berthe, Engr., 308 W. Marshall St., Charleston.

Okla., Oklahoma City—See Water Works. Okla., Wewoka — City, L. I. Sturgeon, Mayor, considering enlargement of sewage disposal plant; cost \$40,000.

Tex., El Paso — City, R. E. Thomason, Mayor, reported, plans constructing 40,000-gal. reservoir on the mesa at north end of Brown St.; cost about \$310,000.

Tex., Fort Worth—City let contract at \$46,880 to Tarrant Construction Co., 1005 Calhoun St., for T. & P-City storm sewer to drain area of Jennings Ave. and South Main underpasses.

Tex., Goose Creek—City has plans for constructing \$15,000 sewage disposal plant. 9-25

Tex., Houston — City, reported, construct first unit of Calhoun St. storm sewer.

Tex., Randolph Field—Constructing Quartermaster has low bid of \$56,939 from Robert E. McKee, 1916 Texas St., El Paso, for sewage disposal plant, including manholes, sewage tanks, chlorinating chambers, buildings, filter bed, siphon, sludge bed, sewer, drains, gutters.

Tex., Sudan—City defeated \$35,000 sanitary sewer bonds. 10-9

Va., Roanoke—City Council proposes bond issue including \$300,000 for sewers and drains.

Va., Newport News—City plans voting soon on \$150,000 bonds for Salters Creek sewage disposal plant; \$70,000 for streets and sewers; \$50,000 parks and playgrounds and \$50,000 for airport. 8-28

Telephone Systems

Ky., Hopkinsville—WFIW, Inc., applied to Federal Radio Comsn., Washington, for permission to move transmitter and studio from Campbell and 17th Sts., Hopkinsville, to Louisville.

Md., Baltimore—American Telephone & Telegraph Co., New York, which controls Chesapeake & Potomac Telephone Companies of Maryland, Virginia, and West Virginia, reported, plans expenditure of \$500,000,000 during 1931 throughout country.

Mo., St. Louis — Southwestern Bell Telephone Co. filed application with State Public Service Comsn., Jefferson City, to issue and sell \$18,000,000 common stock.

Okla., Tulsa—KGSF, Aeronautical Radio, Inc., granted construction permit by Federal Radio Comsn.; 3070 kilocycles, 400 watts.

Tex., San Antonio—KONO, Mission Broadcasting Co. granted construction permit by Federal Radio Comsn. to make equipment changes, including automatic frequency control.

W. Va., Parkersburg—Thomas J. Reese, 703 13th St., applied to Federal Radio Comsn., Washington, for permission to construct broadcasting station.

Textile Mills

Ga., Columbus—Archer Hosiery Mills, will construct building Cor. Talbotton Ave. and Midland Ave.; contract for heating, sprinklers, light and power wiring and machinery to be let separately; 1 story and monitor and connecting passageways; 107x103 ft.; plain and rein. conc.; brick walls; steel sash; Lockwood Greene Engineers, Inc., Spartanburg, S. C.; following contractors estimating: A. K. Adams Co., 542 Plum St., N. W., Atlanta; Ewart Bros., 926 Broadway, Williams Lumber Co., Inc., 13th St., J. P. Bradfield, Hill Bldg., and W. C. Whitaker, 112, First Ave., all of Columbus; West Plant Iron Works, West Point; Fiske-Carter Constr. Co., Masonic Bldg., Greenville, and 121½ W. Main St., Spartanburg, S. C.; Gallivan Construction Co., Gallivan Bldg., and Potter & Shackelford, Allen Bldg., both Greenville, S. C.; T. C. Thompson & Bros., 609 N. South St., Charlotte, Butts Lumber Co., Phenix City, Ala.; bids opened Nov. 25.

S. C., Blacksburg—C. L. Chandler, Supt. Gaffney Mfg. Co., Gaffney, reported, acquired Blacksburg Spinning Co.

S. C., Clover—M. L. Smith, reported, acquired Bowling Green Spinning Mills.

Water Works

Details of water works improvements in connection with the many LAND DEVELOPMENT operations will be found under that classification

Fla., St. Augustine—Peoples Water Service Co., American Traders Natl. Bank Bldg., Birmingham, Ala., negotiating for city water works system; election Dec. 16. 10-16

Fla., St. Petersburg—American Equities Co., 64 William St., New York, reported, acquired Weekiwachee Springs for reserve water supply.

Ga., Elberton—City, construct hydro electric plant and dam; H. S. Jaudon Engineering Co., Conslt. Engrs. 10-30

La., Carenero—C. J. Montgomery, Kaplan, reported, has contract for construction and enlargement of distribution system. 11-13

La., Jackson—City, J. M. Johnson, Mayor, votes Dec. 9 on \$20,000 water works bonds.

La., New Orleans—Sewerage and Water Board of New Orleans, A. G. Moffat, Sec., receives bids Dec. 3 for furnishing labor and material on percentage basis for waterworks, sewerage and drainage construction during 1931: Contract 109-S, furnishing c. i. pipe and fittings; Contract 110-S, laying 24-in. and 30-in. c. i. sewage discharge main and 48-in. c. i. pressure main.

Md., Baltimore—City will lay, with city forces, 5000 ft. of 36-in. water pipe under Riggs Ave. from Payson St. to Ashburton at cost of \$150,000; 12,800 ft. of 24-in. pipe under Belvedere Ave. from Park Heights to Roland Ave., cost \$240,000; and 1200 ft. of 30-in. pipe and 1300 ft. of 12-in. pipe at Pennington Ave. bridge, cost \$40,000.

Md., Frostburg—City, Fred Crowe, Mayor, plans added water supply.

Md., Pikesville, Baltimore—City, Bureau of Water Supply, E. G. Rost, Water Engr., will receive bids about Nov. 26 for automatic pumping station, Pikesville; underground structure; 28x35 ft.; 1 story; 1 ft. conc. wall all around; brick edges.

N. C., Jonesboro—Town let contract to Dowdy & Butler, Sanford, for drilling 10-in. deep well; Spoon & Lewis, Conslt. Engrs., Jefferson Bldg., Greensboro. 11-6

Okla., Oklahoma City—City, reported, plans voting in Dec. on \$1,000,000 water works bonds: \$275,000 bonds for downtown sanitary sewer; \$800,000 for sewage disposal plants; \$1,250,000 for storm sewers; \$400,000 for sanitary sewers; \$420,000 fair park improvements; \$5,000 for purchase park land; \$200,000 municipal garage and fire station; \$50,000 police signal system. 11-20

Tex., Brownwood—Reservoir—See Drainage, Dredging and Irrigation.

Tex., Dallas—Preston Road Fresh Water Dist.; Koch & Fowler, Conslt. Engrs., 801 Central Bank Bldg., reported, plans water works improvements; install tank and tower, mains, etc., for 5500 acre district.

Tex., Fort Worth—City plans issuing \$500,000 filter plant bonds. 9-4

Tex., Houston—City receives bids Dec. 3 for c. i. water mains on various streets. See Want Section—Bids Asked.

Va., Fairfax—Town Council authorized by Judge Walter T. McCarthy, of Fairfax County Circuit Court, to acquire 5 acres on Payne St., as site for water tower, pump house and wells; town recently voted \$50,000 bonds for installation water system; will soon call for bids. 10-30

W. Va., Martinsburg—H. C. Brooks Co., has contract for laying 200 ft. of c. i. pipe.

W. Va., Williamson—City votes within 60 days on \$20,000 bonds for drilling 2 wells, installing storage tank, etc.

Woodworking Plants

Ark., Fort Smith—Fort Smith Body Co., I. H. Nakdimen, Sec.-Treas., construct annex at 512 S. Ninth St. to body plant; brick and steel; Bassham & Wheeler, Archts., Kennedy Bldg., Fort Smith; soon let contract; plant is owned by Johnston and Nakdimen.

Fla., Williston—Williston Crate Co., reported, rebuild mill burned at loss of \$20,000.

Okla., Tulsa—Moore Furniture Mfg. Co., J. H. Moore, Pres., 221 E. First St., plans installing equipment to double capacity of plant.

Va., Richmond—Virginia Wood Preserving Corp., incorporated; Aubrey L. Clark, Chevy Chase, Md.

FIRE DAMAGE

Ark., Salem—Salem Gin & Cotton Co.'s gin; loss \$21,000.

Ark., Walnut Bridge—Bloom Brothers Department Store; Lamar Bakery, Guy Hubbs, Propr.; Brewer Hardware Co.'s store; loss \$100,000.

Fla., St. Augustine—Plaza Hotel Block, owned by Sanchez Estate, Harry Gottheimer, Trustee; loss \$75,000.

Fla., Williston—Williston Crate Co.'s plant; loss \$20,000.

Ky., Covington—Building occupied by Fries & Sons and Dine-Schabel Furniture Co.; loss \$100,000.

Ky., Louisville—Plant and office of Floyd County Veneering Co., East Tenth St.; loss \$40,000.

Ky., Paris—Storage garage of Carmichael Transfer Co., on Sycamore St., Pinecrest Addition; loss \$12,000.

La., Haynesville—Haynesville Cotton Warehouse; loss \$20,000.

Miss., Shubuta—Stores of J. M. Weaver and James A. Weems; small building occupied as office of Mississippi Power and Light Plant.

Mo., Cape Girardeau—Riverside Ice and Fuel Company's plant; \$20,000.

Tex., San Marcos—Jacob Schmidt's department store; loss \$25,000.

Va., Fairfax—Barn on farm of Vernon Lynch near Annandale, on Alexandria-Fairfax pike; loss \$10,000.

Va., Winchester—Apple packing plant of Glale & Hurst, R. O. Fitch, Lessee.

Tex., San Antonio—City, C. M. Chambers, Mayor, has low bid at \$11,285 from Mitchell Construction Co., Bldrs. Exch. Bldg., for 1-story, stone and rein. conc., 80x40 ft., recreational building, Lockwood-Dignowity Park; Wilson & Werner, Archts.; W. E. Simpson & Co., Engrs., both Milam Bldg. 10-30

Tex., Texarkana—City votes Dec. 1 on \$120,000 bonds for purchasing additional ground for site of proposed \$890,000 post office and Federal Court building on State line. 8-7

Va., Abingdon—Washington County Bd. of Supervisors, W. P. Buchanan, member, Bldg. Comm., will select architect to draw plans to repair present jail and also to erect new structure.

Va., Danville—City Council will call election, probably in about 60 days, on \$150,000 armory-auditorium bonds.

Dwellings

D. C., Washington—Henry J. Connor, 3221 Conn. Ave., N. W., has permit for 2 brick, frame and tile dwellings, 1439-43 Holly St., N. W.; 2 stories; \$12,000.

D. C., Washington—W. D. Sterrett, 35th and Rodman St., N. W., has permit for 2 brick and tile dwellings, 3517-19 Rodman St., N. W.; 2 stories; \$24,000.

D. C., Washington—Thos. E. Godfrey, care Louis Justement, Archt., 16 Jackson Place, N. W., erect brick residence; 2½ stories, slate or tile roof, elect. refrigerator; plans ready for sub-bids in about 1 week.

D. C., Washington—Mrs. A. F. Hassan, care Jos. A. Parks, Archt., 1800 E St., N. W., erect brick residence, 3528 R St., N. W.; 2½ stories, linoleum and hardwood floors, tile baths, slate roof, oil burning equipment.

D. C., Washington—L. E. Harris, Investment Bldg., erect dwelling, 5307 Nevada Ave., N. W., after plans by F. A. Wilcox; \$10,000, brick and tile, 2 stories. 11-13

D. C., Washington—E. L. Pfeffer, 5619 Colorado Ave., N. W., erect brick and hollow tile residence, Nebraska Ave. and Livingston St., N. W.; 2 stories, slate roof, hot water or vapor heat; Geo. T. Santmyers, Archt., 925 Fifteenth St.; bids in.

D. C., Washington—Ralph E. Lancaster, 1420 Morse St., N. E., erect residence, 2235 Quincy St., N. E., after plans by Sears, Roebuck & Co., 911 Bladenburg Road, N. E.

D. C., Washington—Porter & Lockie, Archts., 1800 E St., have plans completed in about 3 weeks for dwelling, River Rd., Montgomery County, Md.; brick, 2½ stories, hardwood floors, tile baths, slate roof, vapor heat, probably oil burner, incinerator.

D. C., Washington—Edw. St. Cyr Barrington, Archt., Chastleton Apts., 16th and R Sts., drawing plans for \$50,000 dwelling, Forrest Hills section; local stone, 2½ stories.

D. C., Washington—N. Mezzanotte, 2617 Fourteenth St., N. W., erect dwellings, L'Enfant Square, S. E.; work by sub-contract.

D. C., Washington—A. M. Hyler, 1800 E St., N. W., erect local stone residence, Kenwood, Montgomery County, Md.; 2½ stories, 25x70 ft.; E. W. Coppleman, Archt., Electric Bldg., Richmond, Va.; bids in.

D. C., Washington—S. K. Martin erect 2½-story residence, garage, servants' quarters, lodge and stables, River Rd., Montgomery County, Md.; residence 110x50 ft., marble and hardwood floors, tile roof, tile baths, vapor vacuum steam heat, incinerator, elect. refrigerator; John J. Whelan, Archt., 1147 Connecticut Ave.; bids in.

D. C., Washington—R. E. Latimer, care J. A. Parks, Archt., 1800 E St., erect brick, stone, stucco and timber residence, Rock Creek Hills near 16th St.; 2½ stories, 30x72 ft., hardwood floors, tile bath, vapor heat.

Fla., Clearwater—Chas. Henry Watts has permit for \$18,000 residence.

N. C., Hickory—E. L. Flowers plans \$10,000 residence, N. 17th St.; Georgian type, 10 rooms; plans by Martin J. Hampton, Archt., John Wootten, Mgr., Hickory.

Government and State

Ala., Maxwell Field, Montgomery—Constructing Quartermaster, Maxwell Field, Capt. M. A. McFadden, receives bids until Dec. 17 for 9 double sets of non-commissioned officers' quarters. 11-20

Ala., Montgomery—Constructing Quartermaster, Maxwell Field, Capt. M. A. McFadden, receives bids Dec. 12 for \$60,000 headquarters, operations and parachute depts. building. 11-20

Ala., Montgomery—Following contractors estimating on 2-story and basement, rein. conc., brick and tile barrack building, Maxwell Field, bids Dec. 12 by Constructing

BUILDING NEWS

BUILDINGS PROPOSED

Association and Fraternal

Md., Cockeysville—Grand Lodge, A. F. & A. M., George R. Gorsuch, Grand Master, Baltimore, break ground in spring, 1931, for Home for Dependents of Masons, Bonnie Blink, near here; \$600,000 first unit; 3 stories and basement, stone; quarters for 140; plans by W. W. Emmart, Union Trust Bldg., Baltimore.

N. C., Mount Airy—Granite Lodge, No. 322, A. F. & A. M., M. A. Pendleton, Master, adopted final plans for \$30,000 temple; Mount Airy granite, brick and steel; 2 stories, 38x93 ft.; banquet hall, dance room, kitchen on first floor, lodgeroom on upper floor; club rooms on mezzanine; Harry Barton, Archt., Jefferson Bldg., Greensboro.

Okla., Shawnee—Salvation Army plans drive for funds to complete \$30,000 building.

Bank and Office

Ky., Louisville—Louisville Gas & Electric Co., T. Bert Wilson, V.-P. and Gen. Mgr., has preliminary plans under way for \$1,250,000 office building, southwest corner Fifth St. and Broadway; probably 10 stories. 5-15

Miss., Columbus—Columbus National Bank and First National Bank to consolidate into First-Columbus National Bank; remodel present banking room of First National Bank.

Okla., Oklahoma City—First National Bank & Trust Co., Frank P. Johnson, Pres., opens bids Dec. 1 for superstructure of \$3,000,000 bank and office bldg.; foundation contract previously noted let; fireproof, 32 stories and basement, 140x200 ft., brick, stone, steel and rein. conc., 80,000 sq. ft. of space for banking section, 250,000 sq. ft. for offices; Weary & Alford, Archts., 1923 Calumet Ave., Chicago, Ill.; Edw. Smith, Resident Archt., Amer. National Bank Bldg., Oklahoma City. 9-25

Churches

Ga., Moultrie—First Presbyterian Church, W. C. Vereen, Chmn., has low bid from Huber Construction Co., Moultrie, for \$10,000, 2-story, 40x55 ft., brick and tile Sunday school; comp. roof; T. Firth Lockwood, Archt., Murrain Bldg., Columbus. 10-30

Md., Baltimore—New Covenant Church of God, Mrs. Eunice Rhoades, 3410 Alto Road, plans 1-story, 40x60 ft., brick church, 904 W. 34th St.

Tenn., Nashville—Eastwood Christian Church, Eastland Ave. and 16th St., Dr. J. L. Alderson, Pastor (beginning Jan. 1), plans auditorium.

Tex., San Antonio—First Cumberland Presbyterian Church, Aganier Ave. and W. Elsmere Place, Rev. T. J. Tanner, Pastor, plans auditorium, Sunday school and tower, same site; auditorium first; rein. conc. and masonry, about 45x110 ft. balcony and 4 classrooms on second floor; basement; indirect lighting; ventilating, heating system, kitchen; Robt. Specht, Archt., 419 S. Wicks St.; work start early in 1931.

City and County

Ark., Conway—Faulkner County Quorum Court, J. A. Lea, County Judge, will appoint commission to consider possible erection of courthouse.

Ga., Barnesville—Following are additional bidders on \$60,000 Lamar County courthouse, bids received Dec. 4: Williams Construction Co., Red Rock Bldg., Atlanta; John T. Ragan, Vidalia, Ga.; Ray M. Lee, 213 Westminster Drive; Orr-Barnes Construction Co., Volunteer Life Bldg., Chattanooga; L. J. Lohotay, Opelika, Ala.; Georgia Hardware Co., Forsyth, Ga.; plans by E. C. Wachendorf; E. C. Spiker, Engr., both Standard Bldg., Atlanta. 11-20

Ky., Lexington—City, James J. O'Brien, Mayor, defeated \$350,000 bonds for auditorium. 11-20

La., Crowley—Acadia Parish Police Jury receives bids until Dec. 16 for alterations and repairs to court house; oak, soft tile and marble floors, metal partitions, etc.; Wm. R. Burk, Archt., Balter Bldg., New Orleans.

La., New Orleans—City, M. B. DePass, Municipal Archt., receives bids until Dec. 3 for \$16,000 stable, Pitt. Millaudon St. and Leake Ave.; 1 story, 90x47 ft., brick, stucco trim, rein. conc. foundation, cement floor, steel sash, Kinnear doors.

Okla., Blackwell—Blackwell Library Bd., John S. Burger, Pres., 425 E. Padon St., having plans drawn by Hawk & Parr, Archts., First Natl. Bank Bldg., Oklahoma City, for \$40,000 library; probably use local face and common brick, 1 story and basement, about 65x90 ft. 10-9

Okla., Oklahoma City—Oklahoma County Commrs. will call election on \$50,000 bonds for courthouse.

Okla., Sayre—Beckham County defeated \$50,000 poor farm bonds. 10-16

Tex., Amarillo—Potter County Bd. of Commrs. receives bids Dec. 11 for \$420,000 court house; fireproof, 8 stories, first 4 floors 80x130 ft., next floor 60x140 ft., 2 upper floors 60x76 ft.; jail on 2 upper floors; Townes, Lightfoot & Funk, Archts., Smith Bldg., Amarillo; Page Bros., Asso. Archts., Austin Natl. Bank Bldg., Austin. 9-18

Tex., Cotulla—LaSalle County, Geo. Welhausen, Judge, has plans completed for \$150,000 court house and jail; brick, tile, rein. conc., marble and stone, 4 stories and basement, jail on top floor; Henry T. Phelps, Archt., Hicks Bldg., San Antonio. 10-30

Tex., San Antonio—City, C. M. Chambers, Mayor, receives bids Dec. 1 for \$10,000, 1-story, stone recreational building, Mifflin Park; Wilson & Werner, Archts.; W. E. Simpson & Co., Engrs., both Milam Bldg. 11-20

Quartermaster: Wagar & Co., Norris Bldg.; Norwood Griffin Co., Bona Allen Bldg.; Grahm Construction Co., Red Rock Bldg., all Atlanta, Ga.; Hodgson-Jones Construction Co., Inc., N. Perry St.; Perry & McDonald, 311 Dexter Ave.; Samford Bros., Inc., 301 Washington Ave.; Algernon Blair, First Natl. Bank Bldg.; Upchurch Construction Co., all Montgomery; Decatur Iron & Steel Co., Decatur; A. J. Honeycutt & Co., 2512 Eighth Court, N.; Johnson Construction Co., 1512 N. Sixth St.; Smallman Construction Co., 1109 Fifth Ave., S.; D. T. Underwood, Pioneer Bldg.; E. C. Coston Construction Co., 3019 Sixth Ave., S., all Birmingham; R. E. Sundberg Construction Co., 269 N. Royal St., Mobile; Batson-Cook Co., West Point, Ga.; J. F. Holly Construction Co., 750 19th St., Ensley, Ala.; Detroit Steel Products Co., Barr Bldg., Washington, D. C.; Crescent Steel Co., 120 E. Loughborough, St. Louis, Mo.; Ogletree Construction Co., 11th St., Anniston, Ala.; R. H. Bouigny, Inc., 509 W. Morehead St., Charlotte, N. C.; J. A. Moraw & Owens Co., 144 W. 47th St., Chicago, Ill.; Acme Building Supply Co., Eighth Ave., Meridian, Miss.; Morley Bros. Construction Co., 1614 Bellevue St., Kansas City, Mo.; C. M. Guest & Son, Sharpe St., Anderson, S. C.; J. M. Raymond Construction Co., Hildebrandt Bldg., Jacksonville, Fla.; J. A. Jones Construction Co., Commercial Bank Bldg., Charlotte, N. C.; International Steel & Iron Co., Evansville, Ind.; Crane Co., 1225 Eye St., N. W., Washington, D. C.; Anderson Plumbing Co., Inc., 207 Dexter Ave., Montgomery; Barry & Plumbing & Heating Co., Talladega, Ala.; Hartley Boiler Works, Lowmes St. and R. R., Montgomery. 11-29

Ala., Sylacauga—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., receives bids Dec. 1 for post office site survey. 11-29

D. C., Washington—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., has low bid at \$5725 from H. Herfurth, Jr., Inc., Washington, for clearing site for \$6,900,000 Archives bldg.; John Russell Pope, Archt., 542 Fifth Ave., New York. 11-13

D. C., Washington—Constructing Quartermaster, Army Medical Center, receives bids Jan. 6 for additions to Army Medical School; \$840,000, fireproof, brick, hollow tile, 3 and 4 stories. 11-29

D. C., Washington—David Lynn, Architect of the National Capitol, advises plans for bldgs. for U. S. Botanic Garden are not completed; date for opening bids indefinite; \$800,000; plans being drawn by const. archts., Bennett, Parsons & Frost, 80 E. Jackson Blvd., Chicago, Ill. 3-27

Fla., Jacksonville—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., selected H. J. Klutho, 2030 Main St., Jacksonville, to prepare plans for \$600,000 parcel post building, W. Bay and Cleveland Sts. 4-17

Fla., Miami—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., selected Paist & Stewart, Ingraham Bldg., to prepare plans for post office and custom house; \$1,641,000. 10-23

Ga., Atlanta—State Dept. of Agriculture make \$15,000 alterations and additions to 3-story apartment building, near Capital place, for office purposes; partitions, plastering, new floors, painting; private plans; day labor; L. T. Snider, Supt. 11-29

La., Mansfield — Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., purchased site for post office. 11-29

Md., Fort George G. Meade—Contractors estimating on 2-story, brick nurses' quarters, bids due Dec. 3 at office of Constructing Quartermaster, are: Minter Homes Corp., Dundalk, Md.; T. E. Watts, 12 W. Madison St.; Henry L. Maas & Sons, Inc., 1119 Ensor St.; David J. Farberman, 1123 E. Baltimore St.; Edward G. Turner, 2133 Maryland Ave.; J. L. Robinson Construction Co., 522 Park Ave., all Baltimore; George F. Hazelwood, Howard St., Cumberland, Md.; National Contracting Corp., Laurel, Md.; Ira L. Wales, Glyndon, Md.; Power Construction Co., College Park, Md.; Ralph S. Herzog, 10 S. 18th St., Philadelphia, Pa.; Earl E. Garber & Co., 203 W. Fourth St., Bethlehem, Pa.; N. C. Nelson, Inc., 853 Broadway, New York; Murch Brothers Construction Co., Railway Exchange Bldg., St. Louis, Mo.; Samford Brothers, Inc., 301 Washington Ave., Montgomery, Ala.; H. E. Warthen, Kensington, Md.; H. Herfurth, Inc., District Natl. Bank Bldg.; James Carey King, 6100 Flego Hill; Martin Brothers, 1341 Connecticut Ave.; Bahen & Wright, 916 Rhode Island Ave., all Washington. 11-20

Miss., Kosciusko—Following contractors estimating on \$75,000, 2-story, rein. conc., brick post office, bids Dec. 8 by Treasury Dept., James A. Wetmore, Act. Supvg. Archt., Washington, D. C.: H. H. Brown, Dothan, Ala.; Upchurch Construction Co.; Samford

Bros., 301 Washington Ave.; Algernon Blair, First Natl. Bank Bldg., all Montgomery, Ala.; Lockard & Vaughn, Kidder Bldg., Meridian; M. T. Reed Construction Co., Belzoni; S. G. McCool, Kosciusko; Dye & Mullings, Columbia, Miss.; J. W. Chambers Lumber Co., Athens, Ala. 11-13

Mo., Kansas City—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., has low bid at \$36,941 from G. H. Shartzer, Dayton, O., for preliminary excavation for \$4,500,000 post office. 11-13

Okla., Sapulpa—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., purchased site, Lee and Elm Sts., for \$150,000 post office. 8-21

Tenn., Rogersville—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., receives bids Dec. 1 for post office site survey. 11-13

Tex., Galveston—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., having preliminary surveys made for immigration station and detention building; \$250,000. 11-29

Tex., Randolph Field—Capt. A. W. Parker, Construction Quartermaster, soon have plans ready for two \$30,000 enlisted men's club buildings; 1 story, 54x90 ft., tile and stucco, tile roof. 11-29

Tex., Randolph Field—Constructing Quartermaster, Capt. A. W. Parker, receives bids until Dec. 8 for hardware and accessories for pumping plant, and until Dec. 10 for meter. 11-29

Va., Hampton Roads, Norfolk—Navy Dept., Bureau of Yards and Docks, Washington, D. C., receiving bids, date of opening not announced, for barrack bldgs., Hampton Roads Naval Training Station. 11-6

Va., Hampton Roads, Norfolk—Additional prospective estimators on steel tank, pump house addition, pumps and equipment and piping, Naval Operating Base, fuel depot, Hampton Roads, bids Dec. 3 by Navy Dept., Bureau of Yards and Docks, Washington, D. C.: John J. Shanahan, 217 W. Freemason St.; W. T. Gregory, Law Bldg.; Hall-Hodges Co., Inc., Citizens Bk. Bldg.; Logan McCloud, 1701 Colley Ave., all Norfolk; Hercules Construction Co., 21 E. 40th St.; Ransom & Anderson Co., 136 Liberty St.; Aqua Systems, Inc., 2 Lafayette St.; Columbia Contracting Co., 401 Broadway, all New York; Fulton Iron Works Co., 1259 Delaware St.; Crescent Steel Co., 120 E. Loughborough Ave., both St. Louis, Mo.; Acme Steel Engineering Co., 917 S. Howard St.; Baltimore Machine Works, 111 S. Paca St., both Baltimore, Md.; Pottstown-Sotter Tank Works, Inc., P. O. Box 70, Pottstown, Pa.; Bickelhaupt, Inc., Amer. Natl. Bk. Bldg.; Virginia Machinery & Well Co., 1319 E. Main St., both Richmond, Va.; Pittsburgh-Des Moines Steel Co., Neville Island P. O., Pittsburgh, Pa.; H. M. Lucas, 115 Bruce St., Portsmouth, Va.; Weinman Pump Manufacturing Co., Sharon, Pa.; Chicago Bridge & Iron Co., Columbus, Ohio; Petroleum Iron Works, 1015 Chestnut St., Philadelphia, Pa.; M. W. Galvin, Lowell, Mass.; Virginia Engineering Co., Inc., First National Bank Bldg., Newport News, Va. 11-20

Va., Portsmouth — Additional prospective estimators on post office extension, bids Dec. 2 by Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C.: General — L. McCloud, 1701 Colley Ave.; R. R. Richardson & Co., Inc., Natl. Bank of Commerce Bldg.; M. B. Markland Co., Pender Bldg., all Norfolk, Va.; H. M. Lucas, 115 Bruce Place, Portsmouth; W. E. Rowan, 215 Builders Bldg., Charlotte, N. C.; James DeVault, Canton, O.; Wm. MacDonald Construction Co., Syndicate Trust Bldg., St. Louis, Mo.; N. C. Nelson, Inc., 853 Broadway, New York; Elevators—Capital Lift & Manufacturing Co., 424 W. Town St., Columbus, O.; Kerscher Elevator Co., 918 Michigan Ave., Toledo, O.; Westbrook Elevator Manufacturing Co., Inc., Spring St., Danville, Va.; Walker Electric Manufacturing Co., 215 Cumberland St., Norfolk, Va. 11-20

W. Va., Clarksburg—Additional prospective estimators on \$425,000 post office and court house, etc., bids Dec. 3 by Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C.: General—Ralph Sollitt & Sons Construction Co., 228 N. LaSalle St.; Strandberg Brothers Co., Transportation Bldg.; Hallbauer-LaBahn, Inc., 844 Rush St.; Henry B. Ryan Co., 500 N. Dearborn St.; L. Balkin Co., 850 W. Austin Ave., all Chicago, Ill.; Golder Construction Co., 1600 Arch St.; Ralph S. Herzog, 10 S. 18th St., both Philadelphia, Pa.; Saml. Plato, 614 W. Walnut St., Louisville, Ky.; Dunlap & Co., Inc., Columbus, Ind.; Phelps-Drake Co., Inc., Minneapolis, Minn.; James DeVault, Canton, O.; Earl E. Garber & Co., Bethlehem, Pa.; Murch Bros. Construction Co., Rwy. Exch. Bldg., St. Louis, Mo.; Heapy & Little, Inc., 690 Eighth Ave., New York; A. L. Shrum Co., 226 Grant St., Clarksburg; Kuhn Construction Co., Kanawha Bk. Bldg.; H. B. Agsten

& Sons, 417 Washington St.; Ward & Ward, Peoples Exch. Bk. Bldg., all Charleston, W. Va.; James J. Barnes, Logansport, Ind.; Elevators—Salem Foundry & Machine Works, Salem, Va.; Westbrook Elevator Manufacturing Co., Spring St., Danville, Va.; Warner Elevator Manufacturing Co., 2613 Spring Grove Ave., Cincinnati, O.; Capital Lift & Manufacturing Co., 424 W. Town St., Columbus, O. 11-20

Hospitals, Sanitariums, Etc.

D. C., Washington—Constructing Quartermaster, Army Medical Center, let contract at \$44,349 to Mechanical Engineering & Construction Corp., Mills Bldg., for additions to boiler plant, Walter Reed General Hospital. 11-6

Ga., Savannah—General Hospital Board, Methodist Episcopal Church, South, Dr. C. C. Jarrell, 63 Auburn Ave., N. E., Atlanta, announced plans for hospital; first unit to cost \$250,000; fireproof; architect not selected. 11-29

Miss., Bay St. Louis—Bay St. Louis Chapter, King's Sons and Daughters, Mrs. A. F. Fournier, Pres., erect 2-story brick hospital. 11-29

Miss., Jackson — Mississippi Building Comsn., R. L. Brown, Sec., may soon call for bids for projects costing approx. \$550,000 for State Insane Hospital in Rankin County; buildings to be considered at this time are 2 buildings for disturbed patients, 2 for epileptic patients and 5 cottages for chronic cases; within another month, it is believed, bids will be asked on construction of other buildings totaling about \$260,000 including main dining room and kitchen, building for tubercular patients and auditorium; N. W. Overstreet, Archt., Standard Life Bldg. 7-1

Miss., Oxford—Mississippi Building Comsn., W. C. Trotter, Jackson, selected Bem Price, Comer Bldg., Birmingham, Ala., to prepare plans for \$75,000 brick hospital at University of Mississippi. 10-30

Mo., St. Louis—Bd. of Public Service, E. R. Kinsey, Pres., City Hall, plans to call for bids in spring for \$600,000, 6-story, 99x244 ft., rein. conc., brick, stone, nurses' home, City Hospital; plans by Albert Osburg, City Hall; A. P. Bowen, Engr., care of Dept. of Buildings and Bridges. 1-9

Mo., St. Louis—St. Louis University, Alphonse M. Schwitalis, Dean of Medical School, let contract to Carlo Motor Service Co., 4126 Olive St., for wrecking and excavation for \$1,000,000 Firmin Desloge Memorial Hospital; 13 stories, fireproof, brick, stone, rein. conc.; rein. conc. to be let Nov. 29; open remaining bids Dec. 14; Arthur J. Widner & Associates, Inc., and Study & Farrar, associated architects. 8-14

N. C., Asheboro—Randolph County Hospital Bd. of Trustees, D. B. McCrary, Chmn., plans hospital. 11-29

Tenn., Memphis—Prospective estimators on nurses' home and additions to main bldg. and laundry, U. S. Veterans Hospital, bids Dec. 23 by U. S. Veterans Bureau, Arlington Bldg., Washington, D. C.: Bracker Construction Co., Builders Exch., Minneapolis, Minn.; Algernon Blair, First Natl. Bank Bldg.; Samford Bros., Inc., 301 Washington Ave., both Montgomery, Ala.; S. & W. Construction Co., Shrine Bldg.; Wessell Construction Co., 388 N. Front St., both Memphis, Tenn.; W. P. Thurston Co., Inc., 301 S. Fourth St., Richmond, Va.; Angle-Blackford Co., American Bank Bldg., Greensboro, N. C.; Smallman Construction Co., 1109 S. Fifth Ave., Birmingham, Ala.; Batson-Cook Co., West Point, Ga.; Henry B. Ryan Co., 500 N. Dearborn St., Chicago, Ill. 11-13

Tex., Edinburg—City, D. C. Abney, Mayor, reported, soon let contract for remodeling 5-story, brick, rein. conc. hospital; includes new roof; \$150,000. 11-29

Tex., Luling—Dr. Clay Nichols erect 1-story, brick veneer drug store and hospital building; store, 32x70 ft.; hospital, 87x50 ft. with connecting arcade 50 ft. long; plans complete about Nov. 26; Wilson & Werner, Archts., Milam Bldg., San Antonio. 11-29

Hotels and Apartments

Ark., Hot Springs National Park—M. Edwards, Prop., Hot Springs Coffee Mills, 116 Market St., erect \$12,000, 2-story, brick veneer, 4-apartment on Hickory St.; Tom Harding, Archt., Donaghey Bldg., Little Rock. 11-29

D. C., Washington—Wm. A. Hill Co., 730 17th St., N. W., erect two 2-story brick flats, 1428-30 A St., S. E.; \$12,000. 11-29

D. C., Washington—Young & Oppenheimer, 1156 Owen Place, N. E., have permit for four 2-story brick flats, 1107-13 Holbrook Terrace, N. W.; \$32,000. 11-29

Md., Baltimore — David Block, 1 Forest Court Apts., remodel 3-story dwelling, 1816 Eutaw Place, for apartments. 11-29

Md., Belair—Belair Amusement Co., care Outdoor-In Golf Courses, Inc., Archt., 10 E. Lexington St., Baltimore, soon ready for bids for \$20,000 amusement center; consist of golf course, dance hall and auditorium.

Mo., Springfield—Eugene F. Johnson, Archt., McDaniel Bldg., preparing plans for remodeling and enlarging restaurant in Ozark Hotel, 419 St. Louis St., for H. C. Williams, Propr., Williams Restaurant, 1415 St. Louis St.; \$35,000.

Tex., Dallas—George W. Owens, 3310 Commerce St., erect 15,000, 2-story, brick veneer, 12-apartment, 1510-12 N. Fitzhugh St.

Va., Clarendon—J. C. Boss, 101 Walnut St., soon ready for bids for \$100,000, 3- or 4-story, brick, conc. and hollow tile apartment; C. K. Howell, Archt., Mather Bldg., Washington, D. C.

Miscellaneous

D. C., Washington—J. W. West, 1420 New Jersey Ave., having plans prepared by R. C. Archer, 1759 You St., N. W., for \$25,000, 2-story, brick and hollow tile funeral parlor.

Ga., Brunswick—Francis L. Abreu, Archt., Dunwoody Bldg., receives bids Nov. 28 for \$10,000, 1-story, frame and stucco tourist clubhouse on St. Simons Highway triangle; Jas. D. Gould, Chmn., Bldg. Comm.

Railway Stations, Sheds, Etc.

Ga., Moultrie—Atlanta, Birmingham & Coast Ry.; R. E. Tripp, Engr., Henry Grady Bldg., Atlanta, soon ready for bids for rebuilding freight station damaged by fire.

Tex., Dumas—Gulf, Colorado & Santa Fe R. R., F. Merritt, Ch. Engr., Galveston, plans to start work soon on depot.

Tex., Fort Worth—K. B. Duncan, Ch. Engr., Gulf, Colorado & Santa Fe Ry. Co., Galveston, advises that plans and specifications for proposed passenger and freight station have not been drawn and probably will receive no instructions regarding this until after first of year.

Schools

Ala., Auburn—School Bd. soon call for bids for \$100,000 combination high and grammar school on Sanford Ave.

Ala., Jasper—Walker County Bd. of Education, J. Alex Moore, Supt., rebuild school in Good Springs Dist. near Jasper; plans by State Dept. of Education, Montgomery.

Ark., Conway—Final step in proposed unification of Hendrix-Henderson College at Conway and Galloway Woman's College at Searcy was taken recently; Hendrix-Henderson is to become Trinity College and Galloway to become Trinity Woman's College; schools will continue to operate separately at Conway and Searcy, but under one administrative board.

D. C., Washington—District Commrs., Room 509, District Bldg., receives bids Dec. 9 for 4-room extensible building, 10th and Franklin Sts., N. E., to be known as "rosby Noyes School"; contents 278,000 cu. ft.; receives bids Nov. 28 for remodeling physiotherapy rooms in Magruder and Weightman schools; apply Room 427, District Bldg., for plans, specifications and drawings.

D. C., Washington—District Commrs., 509 Dist. Bldg., having plans prepared for \$200,000, 2-story, brick, stone, fireproof addition to Anthony Bowen School, First and M Sts., S. W.; A. L. Harris, Municipal Archt., Dist. Bldg.

D. C., Washington—Following contractors estimating on \$135,669 Horace Mann School, bids Dec. 3 by District Commrs., Room 509 Dist. Bldg.: T. T. Taylor Co., Inc., District Natl. Bank Bldg.; skinker & Garrett, 1719 I St., N. W.; Londoun-Rust Co.; Bahen & Wright, 916 R. I. Ave., N. E.; C. A. Hofferberth Construction Co., Second and M Sts., S. W.; Fidelity Construction Co.; Arthur L. Smith; Geo. E. Wyne, both 2539 Pa. Ave., N. W.; all Washington; W. P. Rose Co., Wayne Natl. Bank Bldg., Goldsboro, N. C.; Stofflet & Tillotson, Wesley Bldg.; Ralph S. Herzog, 10 S. 18th St., both Philadelphia; North-Eastern Construction Co., 6 W. Madison St., Baltimore; A. L. Harris, Municipal Archt., Dist. Bldg.

D. C., Washington—Following contractors estimating on construction of athletic field, including chain link fence, running track, sectional steel grandstands, sodding and seeding, for Western High School, bids Dec. 8 by Dist. Commrs., Room 509 Dist. Bldg.: C. A. Hofferberth Construction Co., Second and M Sts., N. W.; Arthur L. Smith; Geo. E. Wyne, both 2539 Pa. Ave., N. W.; Fidelity Construction Co., all Washington; Ralph S. Herzog, 10 S. 18th St., Philadelphia; Newport Contracting & Engineering Co., Lee Hall, Va.; A. L. Harris, Municipal Archt., Dist. Bldg.

D. C., Washington—Following contractors estimating on \$132,500, 8-room school, Northampton St. and Broad Branch Road, bids Dec. 5 by District Commrs., 509 Dist. Bldg.: Londoun-Rust Co.; T. T. Taylor Co., Inc., District Natl. Bank Bldg.; Geo. E. Wyne; Arthur L. Smith, both 2539 Pa. Ave., N. W.; Bahen & Wright, 916 R. I. Ave., N. E.; C. A. Hofferberth Construction Co., Second and M Sts., S. W.; Chas. H. Tompkins, 1608 K St., N. W.; Fidelity Construction Co., all Washington; Stofflet & Tillotson, Wesley Bldg.; Ralph S. Herzog, 10 S. 18th St., both Philadelphia; North-Eastern Construction Co., 6 W. Madison St., Baltimore; A. L. Harris, Municipal Archt., Dist. Bldg.

Fla., Dover—Hillsborough County School Bd., Tampa, called election Dec. 16 on \$45,000 bonds in Dover School Dist. for school building; brick.

Ga., Thomasville—Following contractors estimating on 2-story and basement, 167x105 ft., brick, stone trim high school, alterations to present building and constructing connecting corridors, \$125,000, bids Dec. 10 by Bd. of Education, B. B. Broughton, Sec.; Smith & Pew, 435 Irwin St., N. E.; J. F. Holley, 254 Capitol Place, S. W., both Atlanta; Joe M. Beutell; Prince E. Jonright; E. Q. Stacy, all Thomasville; Daniel Lumber Co., LaGrange; A. E. Ittner, Albany; J. M. Culpepper & Sons, Pelham; J. F. DuPree & Son, Rome; T. C. Thompson & Bro., 609 N. Smith St., Charlotte, N. C.; Arthur F. Perry, Jr., Bisbee Bldg., Jacksonville, Fla.; Plumbing and Heating—Jas. Watt & Bro., Thomasville; L. J. Lehotay, Opelika, Ala.

La., Mangham—Richland Parish School Bd., Rayville, receives bids Dec. 2 for brick veneer teachers' cottage for high school; J. W. Smith & Associates, Archts., Ouachita Natl. Bank Bldg., Monroe.

La., Monroe—Ouachita Parish School Bd., T. O. Brown, Supt., has low bid at \$33,140 from Walter Morris, West Monroe, for 1-story, 92x110 ft., brick and steel gymnasium at high school; J. W. Smith & Associates, Archts., Ouachita Natl. Bank Bldg.

La., Plaquemine—Iberville Parish School Bd. postponed election in School Dist. No. 2 on bonds to Jan. 12; reduced amount from \$175,000 to \$120,000; plans call for converting Plaquemine School into elementary school; purchasing site and erecting high school; providing gymnasium, auditorium and athletic field, all in Plaquemine; erecting 2-classroom addition to Crescent building; erecting building at Grand River and repairing Bayou Pigeon School.

La., Shreveport—Caddo Parish School Bd. having plans prepared by Clarence W. King, Prescott Lane, for \$75,000 Jewella School.

La., Ville Platte—Evangeline Parish School Bd., O. A. Brou, erect school at Tate Cove and school at J. R. Fontenot site; \$10,000; Herman J. Duncan, Archt., 120 Munay St., Alexandria.

Md., Baltimore—Public Improvement Comsn., Bureau of Construction, H. J. Leimbach, Supvg. Engr., City Hall, ready for bids in Spring for \$90,000 addition to School No. 34, Washington Blvd. and Carey St.; Carl F. Strohmeier, Archt., Calvert Bldg.; James Posey, Engr., Baltimore Trust Bldg.

Md., Baltimore—Bd. of Public Improvement Comsn., Bureau of Construction, H. J. Leimbach, Supvg. Engr., City Hall, has low bid at \$482,000 from Henry L. Maas & Son, 1119 Ensor St., for high school for colored, Eden and McDerry Sts.; Taylor & Fisher, Archts., Herman F. Doeelman, Struc. Engr., both Baltimore Trust Bldg.; Henry Adams, Mech. Engr., Calvert Bldg.

Md., College Park—University of Maryland, Dr. R. A. Pearson, Pres., having plans prepared by Howard W. Cldr, 1800 E St., N. W., Washington, D. C., for field house; 1½ stories, 110x170 ft., brick, conc. and steel, slag roof, tile floors, steam heat.

Miss., Greenwood—School Bd. plans repairs to Greenwood High School, Junior High School, Davis Grammar School, East Greenwood School, North Greenwood School, North Greenwood Public School and colored public school; City Council will meet on Dec. 2 to issue \$10,000 bonds for purpose, provided no protests shall be filed against bonds before that time.

Miss., Jackson—Bd. of School Trustees plans \$300,000 building program including additions and extensions of from four to six rooms at George, Power, Galloway, Whitefield, Power and Davis schools and new building for negro schools; will request that election be called to authorize bond issue to cover amount.

Miss., Oxford—Mississippi Building Comsn., W. C. Trotter, Jackson, selected Ben Price, Comer Bldg., Birmingham, Ala., to complete building program at University of Mississippi.

Mo., St. Louis—Washington University having plans prepared by Jamieson & Spear, Arcade Bldg., for proposed school of Architecture; to be erected from \$850,000 gift of Joseph B. Givens as memorial to parents; plans to start excavation work by January.

Tex., College Station—Agricultural and Mechanical College erect 4-story, 230x100 ft., U-shaped, brick and rein. dormitory; bids for millwork being received on revised plans; to be opened Dec. 10; plans by Prof. F. E. Giesecke, Archt., College Station.

Tex., Dumas—School Bd. considering erecting brick high school.

Tex., Dimmitt—Dimmitt Ind. School Dist. voted \$35,000 bonds for physical education unit at new high school.

Tex., Junction—Junction Ind. School Dist., C. A. Schraub, Pres., School Bd., erect \$70,000, 2-story, brick, rein. conc. and stone high school; cement and tile floors; Phelps & Dewees, Archts., Gunter Bldg.; W. E. Simpson Co., Engrs., Milam Bldg., both San Antonio; bids in.

Stores

D. C., Washington—National City Co., 741 15th St., N. W., has permit for \$10,000 structural alterations to building, 741 Fifteenth St., N. W.

D. C., Washington—Sanitary Grocery Co., Inc., 1845 Fourth St., N. E., leased store, 2620 Connecticut Ave., N. W.; reported remodel; Indiana limestone exterior.

D. C., Washington—Penn Realty Corp., care Julius Wenig, Archt., Edmonds Bldg., ready for sub-bids for 2-story, brick store and apartment, 1430 Morse St., N. E.; hot water heat; built-up roof.

D. C., Washington—Eli Horn, care W. S. Plager, Archt., 1930 Kearney St., N. E., soon ready for bids for 1-story, 30x67 ft., limestone and brick store, 15th St. between L and M Sts.; slag roof, terrazzo floors.

D. C., Washington—Gude Bros. Co. (florists), 1212 F St., has low bid from Davis-Wick-Rosengarten Co., 1406 G St., for remodeling building, 1124 Connecticut Ave.; A. P. Clark, Archt., 816 Fourteenth St.

Fla., Miami Beach—Marmel Holding Co., E. L. Lockhart, Atty., 140 Sixth St., plans \$10,000, 1-story, 28x75 ft. store, Collins Ave. and 15th St.; Weed & Virrick, Archts., 2620 Biscayne Blvd., Miami.

La., Wisner—Carl Shipp & Son erect 50x100 ft., brick and conc. store and corrugated iron wholesale house, to replace recently burned structure; Carl Shipp, Sr., Archt.; Carl Shipp, Jr., Engr.

S. C., Greenwood—R. B. Curry, Agent, plans to begin work soon on store building.

Tex., San Antonio—F. W. Grand-Silver Stores, Inc., 902 Broadway, New York, erect 2-story and basement, 93x150 ft., brick, steel, rein. conc. and terra cotta store building, 200 block E. Houston St.; L. J. Johnson, Company Archt.; Beretta-Stiles Co., Inc., Natl. Bank of Commerce Bldg., San Antonio, Construction Supervisors; bids in Nov. 28.

Va., Richmond—Miller & Rhoads, 509 E. Broad St., having plans prepared by Carneal, Johnston & Wright, Electric Bldg., for 3-room addition to store; date opening bids not determined.

Va., Richmond—H. Carl Messerschmidt, Archt., Mutual Bldg., prepared plans for one-story store, 111 E. Grace St.; bids in.

Theatres

La., Abbeville—Frank DeGauw, owner of Frank Theater, plans erecting moving picture theater; work to get under way about Jan.

Tex., Oak Lawn, Dallas—C. E. Kennemer, 2834 N. Haskell St., erect \$150,000 theatre, 3415-17 Oak Lawn Ave., Spanish type, seat 1200 people; to be operated by P. G. Cameron, 5507 Bennett St.; W. Scott Dunne, Archt., Melba Bldg., Dallas.

Va., Roanoke—Theater Holding Corp., care Wm. P. Engle, Sec., 1901 First Ave., Birmingham, Ala., has low bid at \$256,000 from H. A. Lucas, Colonial Natl. Bank Bldg., for \$500,000 theater for Elks Club to be leased to Paramount Theaters Corp., Paramount Bldg., New York; brick, tile and rein. conc., stone trim; C. W. & Geo. L. Rapp, Archts.-Engrs., Paramount Bldg., New York.

BUILDING CONTRACTS AWARDED

Bank and Office

Fla., Miami—Livingston & Co., B. Kingman Moore, Mgr., Biscayne Bk. Bldg., let contract to M. R. Harrison Construction Co., 500 N. E. 45th St., for alterations to section of Shoreland Arcade; Carlos B. Schoeppl, 2382 N. Alton Rd., and John & Coulton Skinner, 528 Lincoln Rd., asso. archts. 11-6

Tex., Dallas—Dallas Gas Company 2016 Jackson St., let contract to Jopling Construction Co., fidelity Union Bldg., for superstructure of \$900,000 office bldg., Jackson and Harwood Sts.; 13 stories, with foundation to carry 23 stories, brick, steel, stone and rein. conc.; Lang & Wittell, Archts., Natl. Bk. Bldg.; Gardner & Howe, Struct. Engrs., Kirby Bldg. 10-2

Va., Fairfax—National Bank of Fairfax Bd. of Directors let contract to C. Wohlgenuth, Jr., 1800 E St., N. W., Washington, D. C., for 1-story, mezzanine and basement, 45x65 ft. brick building, Main and Payne Sts.; white wood exterior trim, slate roof; 2 stories in basement; Arthur B. Heaton, Archt., 1211 Connecticut Ave., N. W., Washington. 10-16

Churches

Ga., Atlanta—Kirkwood M. E. Church, Jack Brigham, Chmn., Bldg. Comm., 70 Whitehall St., S. W., let contract to W. B. Hardman, 438 Hardendorf Ave., N. E., for \$16,000 Sunday school; 2 stories and basement, brick veneer, wood floors, comp. roof, steam heat. 11-20

Mo., University City, St. Louis—Shaare Emeth Congregation, Edwin B. Miessner, Pres., 6244 Forsythe St., started work on synagogue, Delmar Blvd. and Washington Ave.; \$250,000, 235x160 ft., steel, rein. conc., brick and cut stone; Chas. B. McCormack & Son, Gen. Contrs., 318 N. Eighth St.; rein. conc., McCormack-Combs Construction Co., Columbia Bldg.; brick work, Carl Koopman, 4714 S. Broadway, and Pyramid Brick Co.; H. J. Elson, Const. Engr., 208 N. Broadway, all St. Louis; Alfred S. Aischuler, Inc., Archt., Steger Bldg., Chicago, Ill. 9-25

Tex., Houston—West End Baptist Church, 800 N. Shepherd Drive, Rev. R. H. Tharp, Pastor, let contract for \$19,000 Sunday school to P. M. Davis; brick, 3 stories, 44x66 ft.; 3 assembly rooms and about 50 classrooms. 9-18

City and County

La., New Orleans—City, Dept. of Public Finance, let contract at \$252,295 to Caldwell Bros. & Bond Bros., 816 Howard Ave., for Touro-Shakespeare Almshouse, Gen. Myers Ave., Algiers; face brick and stucco, cast stone, conc., terrazzo and wood floors, rein. steel, cast and wrought iron, steel windows, art glass, tile roof, sheet metal work, screen, spetic tank, cement waterproofing, stone flagging, elect. dishwashers, refrigeration system, hot water heat; Wm. R. Burk, Archt., Balter Bldg. 9-18

Tex., Austin—Swann-Schulle Furniture Co., Fifth and Congress Ave., has contract at \$22,667 for steel furniture and equipment and at \$4140 for chairs for Travis County court house; Tobins, Inc., 803 Congress Ave., has contract at \$4224 for blinds. 9-18

Dwellings

D. C., Washington—W. C. & A. N. Miller have permit for \$17,000 stone dwelling, 4338 Forest Lane, N. W.; 3 stories; G. E. MacNeil, Archt., both 1119 17th St., N. W.; owners build. 10-18

D. C., Washington—C. W. Williams, North Woodside, erect 5 brick dwellings, 5221-29 Kansas Ave.; 2 stories, tin roof, hot water heat; \$50,000; Geo. T. Santmyers, Archt., 927 Fifteenth St., N. W.; owner builds; drawing plans. 10-18

D. C., Washington—Robt. E. Kline, Union Tr. Bldg., erect 9 brick and hollow tile dwellings and garages, C St., N. E., 2½ stories; \$75,000; Geo. T. Santmyers, Archt., 925 15th St., N. W.; owner builds; drawing plans. 10-18

D. C., Washington—Louis Justement, Archt., 16 Jackson Place, erect \$20,000 residence and garage, Shoemaker Lane and Conduit Rd., N. W.; brick, 2½ stories; ready for sub-bids in about 1 week. 10-18

D. C., Washington—B. H. Gruver, 927 Fifteenth St., erect 10 brick and hollow tile dwellings, W St., near 38th St.; 2½ stories, 15x34 ft.; Geo. T. Santmyers, Archt., 925 15th St.; work by sub-contract. 10-18

D. C., Washington—Harry Shapiro, 1477 Girard St., N. W., erect 5 brick dwellings, Marietta Park section; 2 stories, tin roof, hardwood floors, hot water heat, tile bath; \$50,000; Geo. T. Santmyers, Archt., 925 Fifteenth St.; owner builds; drawing plans. 10-18

D. C., Washington—G. S. White, Archt., 927 Fifteenth St., drawing plans for \$15,000 dwelling and garage; brick, hollow tile, 2½ stories, 28x36 ft., slate roof, hot water heat, tile baths, oak floors; P. H. Willis, Contr., 927 Fifteenth. 10-18

D. C., Washington—Chas. D. Sager, Bldr., 924 Fourteenth St., erect 10 brick and hollow tile dwellings, 23rd St., N. E.; 2 stories, 16x30 ft., linoleum and oak floors, tin roof, hot water heat; \$60,000; Geo. T. Santmyers, Archt., 925 Fifteenth St. 10-18

D. C., Washington—Grant P. Border, care G. S. White, 927 Fifteenth St., N. W., erect \$15,000 residence, 5326 Nebraska Ave.; brick and hollow tile, 2½ stories, orna. iron, sheet metal, slate roof; plans by Mr. White; P. H. Willis, Contr., 927 Fifteenth St., N. W. 10-18

D. C., Washington—Breuninger & Phifer, 1103 Vermont Ave., N. W., erect brick and stone residence and garage, 3301 Quesada St., N. W.; 2½ stories; L. E. Sholtes, Archt., 907 Fifteenth St.; owner builds by sub-contract. 10-18

Fla., Coral Gables—C. P. Johnson, 1327 N. Greenway Dr., has permit for remodeling residence and garage; \$20,000; J. E. Hemmings, Supt.; changing partitions, adding rooms, cathedral ceiling in living room. 10-18

Fla., Miami Beach—C. R. Gorton, 126 S. E. 15th Road, Miami, erect 2-story, 24x30 ft., rein. conc., conc. block and stucco residence, 80th St. near Collins Ave.; cement and pine floors, comp. roof; owner builds, day labor; Geo. F. Pfeiffer, Archt., Biscayne Bank Bldg., Miami. 10-18

Fla., Miami Beach—Komoko Corp., P. L. Watson, Collins Ave., has permit for frame bungalows and garages, Atlantic Heights; \$10,000; Geo. W. Dickens, Supt. of Construction; plans other buildings in near future. 10-18

Fla., Miami Beach—Seashore Builders, Inc., G. C. Kirkland and R. J. Bell, 1244 Ave. Anastasia, Coral Gables, erect 2 residences; start work in next two or three weeks; John and Coulton Skinner, Archts., French Village, Lejeune Road, Coral Gables. 10-18

Fla., South Jacksonville, Jacksonville—Better Homes Co. erecting Colonial dwelling, River Rd., Villa Alexandria; whitewashed brick and wide siding, 3 baths, clay tile roof; Marsh & Saxelbye, Archts., Consolidated Bldg.; Arthur F. Perry, Jr., Contr., Bisbee Bldg., both Jacksonville. 10-18

Ga., Atlanta—W. A. Williams, 934 Glenwood Ave., S. E., erect brick veneer residence, 970 Woodland Ave., S. E.; 1 story, comp. roof; owner builds. 10-18

Ga., Atlanta—Thos. K. Windham erect dwelling, Peachtree-Battle Ave., Haynes Manor, after plans by Jesse Wilhoit, Archt., both Mtg. Guar. Bldg.; fireproof, brick and tile; owner builds. 10-30

Ga., Atlanta—Marbut & DeLoach, 583 Flat Shoals Ave., S. E., erect frame residence, 1431 Newton Ave., S. E.; comp. roof; day labor. 10-18

Ga., Gainesville—Emory Brown soon start work on 7-room brick veneer residence on W. Broad St.; comp. roof, hardwood and tile floors; C. C. Robbs, Contr. 10-18

La., New Orleans—Anthony Henry, Contr., 2754 Accacia St., ready for sub-bids in about 30 days on electric wiring, plumbing, sheet metal work, lumber, millwork and screens for residence. 10-18

La., New Orleans—Rosario and Frances Perigoni erect single residence, Johnson and Arts Sts.; J. E. Cockerham, Contr., 941 St. Maurice Ave. 10-18

La., New Orleans—E. J. Montet, Contr., 2219 Dante St., erect single dwelling and garage, 349 Millaudon St. 10-18

Md., Baltimore—Mueller Construction Co., 3304 Barclay St., erect dwelling, 4905 Roland Ave.; owner builds. 10-18

Md., Baltimore—B. C. Engineering Co., C. K. Kaiss, Equitable Bldg., excavating for 8 2-story, 15x48 ft., brick dwellings, 124-28 Pressman St.; \$25,000; Chas. E. Krauss, Bldr., care owner; priyate plans; owner taking sub-bids. 10-18

Md., Baltimore—Gunn, Williamson & Guy, Inc., 306 N. Charles St., erect \$20,000, 2½-story, brick or stone dwelling in Homeland; owner builds; architect not selected. 10-18

Md., Baltimore—Alton T. Nichols, 3500 Washburn Ave., erect 2 dwellings, Wabash Ave.; owner builds; work started. 10-18

Md., Baltimore—Milton R. Lerch, Bldr., 5206 Hartford Road, erect 2 frame dwellings and garages, 3104-06 Northway Drive; 2 stories; \$10,000. 10-18

Md., Bethesda, Branch Washington, D. C.—Jos. A. Shafer, 6712 Wisconsin Ave., Chevy Chase, erect 2 brick and hollow tile dwellings; 2 stories, slate roofs; owner builds; drawing plans. 10-18

Md., Bethesda, Branch Washington, D. C.—Davis, Wick, Rosengarten Co., 1406 G St., Washington, has contract for \$175,000 Colonial dwelling and garage near Bethesda; local stone and hollow tile, 2½ stories; W. G. Peter, Archt., Union Trust Bldg.; Geo. A. Weschler, Mech. Engr., 16 Jackson Place, N. W., both Washington. 10-18

Md., Chevy Chase, Branch Washington, D. C.—Geo. T. Gilleland, 6512 Ridgewood Ave., Washington, erect brick and hollow tile residence; 2 stories, slate roof, hot water heat; J. W. Kearney, Archt., 1417 K St., Washington; owner builds. 10-18

Md., Dundalk, Baltimore—St. Luke's E. L. Church, Rev. E. C. Moellman, Pastor, erect \$10,000, 2½-story, 28x26 ft., brick parsonage, 1805 New Pittsburgh Ave.; J. H. Peper, Bldr., Golden Ring Road, Raspeburg; J. H. Brower, Jr., Archt., 49 Broadship Road, Dundalk. 10-23

Md., Havre de Grace—Millard E. Tydings, Senate Bldg., Washington, D. C., let contract to E. S. Seutman, Perryville, Md., for stone residence; 2½ stories, 36x46 ft.; Henry Powell Hopkins, Archt., 347 N. Charles St., Baltimore, Md. 9-25

Md., Kensington—W. P. Stallsmith erect \$10,000 residence; brick, 2 stories, hardwood floors, tile baths, hot water heat; Leonard S. Poole, Contr. 10-18

Md., Silver Spring—Country Club Property Co., B. Clark, 1416 I St., N. W., Washington, D. C., erect 25 brick veneer and stucco dwellings near Silver Spring; 1½ and 2 stories, comp. and asphalt roof; owner builds. 10-18

Mo., Clayton, St. Louis—C. G. Joplin, 6635 Delmar Ave., erect \$12,500, 65x30.6 ft. brick dwelling, 7400 York St.; also \$10,000, 35x30 ft. brick dwelling, 7437 Oxford St.; conc. block foundation, tile roof, steam heat; Edw. B. Kelley, Archt., 6625 Delmar St.; owner builds. 10-18

Mo., Clayton, St. Louis—Illinois Lumber & Tile Co., Madison, Ill., erect \$13,000, 2-story, 70x24 ft., brick dwelling, Tuscan Park; slate roof, hot water heat; A. L. Stewart, Bldr., Granite City, Illinois; E. H. Serrano, Archt., 6128 Pershing St., St. Louis. 10-18

Mo., Clayton, St. Louis—J. P. Fleming, 651 Glenn Ridge, erect \$10,000, 22x52 ft., 7-room, brick dwelling, 7679 Carswold St.; T. G. Avis, Archt., Big Bend Blvd.; owner builds. 10-18

Mo., Clayton, St. Louis—A. Van Ronzelen, 4966 Sutherland St., St. Louis, erect \$14,000, 32x45 ft., brick duplex dwelling, 8008 Venetian St.; asbestos shingle roof, hot water heat; A. L. Jones, Archt.-Bldr., Webster Groves. 10-18

Mo., Clayton, St. Louis—L. R. Manning, 1310 Talmadge St., erect \$10,000, 26x38 ft., brick dwelling, 7451 York Drive; clay tile roof, steam heat; J. R. Herr, Archt., 7813 Forsythe St.; owner builds. 10-18

Mo., St. Louis—Nolan Stinson, 6635 Delmar Ave., erect \$10,000 brick residence, Fair Oaks, St. Louis County; brick, 2 stories, 65x36 ft.; owner builds. 10-18

Mo., St. Louis—E. Lansang Ray, Globe-Democrat Bldg., remodel 3-story dwelling, 5124 Westmoreland Place; \$10,000; Mauran, Russell & Crowell, Archts., Chemical Bldg.; Gamble Construction Co., Bldr., 620 Chestnut St. 10-18

Mo., St. Louis—Norso Realty Co., 3542 Gravois St., erect 9 brick dwellings, Upton St.; 1-story, 30x36 ft., rubberoid shingle roofs, hot air heat; F. G. Avis, Archt., 1021 Big Bend Rd.; W. Kuna, Jr., Contr., 4832 Allemania St. 10-18

Mo., St. Louis—Alex Jolley erect \$12,000 residence, La Hacienda sub-division; tile and stucco, 2 stories, 57x45 ft.; Clymond & Heinicke, Archts.; A. L. Struebig, Contr. 10-18

Mo., St. Louis—Clara J. Gerling, 1509 Kienlen St., erect 9 brick dwellings, Mayfair Park and Kentland; 1 story, 24x28 ft. and 22x24 ft.; total \$14,000. 10-18

Mo., St. Louis—C. C. Calcaterra, 5711 S. Grand Ave., erect \$14,000 brick residence, 3947 Kingshighway, S. W.; 2 stories, 42x44 ft., slate roof, hot water heat; G. W. Cole Construction Co., Bldr., 5417 Kingshighway. 10-18

Mo., St. Louis—E. H. Bartlesmeyer erect \$10,000, brick residence, 6520 Delor St.; stories, slate roof, hot water heat; W. D. Manske & Associates, Archts., 4080 Olive St.; Wm. H. & Nelson Cunliff Co., Contr., 3327 Lindell Blvd. 10-18

Constructive Auditing

An independent audit is to be regarded always as the means to valuable advice from the auditor or auditing firm.

Too often, auditing service ends with the report of the financial condition of (name) as of (date).

Auditors should be equipped—and should be employed—to offer recommendations in connection with method, policies, financing, etc.; to furnish comparative statistics intelligently prepared; to point out how mistakes and waste may be eliminated, and pitfalls avoided.

Of course, *every audit should be a Detailed Audit*. But whether it be *Detailed*, *Semi-Detailed* or *Balance Sheet*, it can, and should be made to, serve as the basis, not only of the financial report, but also for constructive help.

With the business man's appreciative understanding of this help, and the cooperation of progressive Public Accountants, Auditing becomes *Constructive* and offers its greatest value.

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HARTFORD
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HOUSTON
INDIANAPOLIS
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LOS ANGELES
LOUISVILLE
MEMPHIS
MIAMI
MILWAUKEE
MINNEAPOLIS
NEW ORLEANS

NEW YORK
OMAHA
PHILADELPHIA
PITTSBURGH
PORTLAND, ME.
PROVIDENCE
READING
RICHMOND
ROCHESTER
ST. LOUIS
ST. PAUL
SAN ANTONIO

SAN FRANCISCO
SEATTLE
TAMPA
TOLEDO
TULSA
WACO
WASHINGTON
WHEELING
WILMINGTON, DEL.
WINSTON-SALEM
YOUNGSTOWN

N. C., Charlotte—J. H. Carson, 328 S. Tryon St., plans \$12,000 English type dwelling and \$4500 bungalow, in addition to 10-room brick veneer dwellings under constr. on Hertford Rd., Myers Park.

N. C., Charlotte—E. R. Cannon, 501 E. Boulevard, excavating for \$25,000 residence, after plans by Louis H. Asbury, 1514 E. Fourth St.; brick veneer and stone, 2 stories, 43x64 ft., oak and tile floors, conc. foundation, slate roof; Southeastern Construction Co., Contr., 201 W. Second St. 11-20

Okla., Tulsa—H. E. Russell, 1513 E. 16th St., framing \$13,500 brick veneer residence, 2123 E. 24th St.; 2 stories, 32x57 ft., oak floors, shingle roof; F. E. Bossard, Jr., Archt., M. W. Turner, Contr., 614 Commercial Bldg. 618 S. Delaware St.; M. W. Turner, Contr., 614 Commercial Bldg. 11-20

Tex., Houston—G. C. Schmidt, Sixth and Richmond Sts., erect \$15,000 residence, 2341 Bluebonnet Drive, Braeswood; brick veneer, 12 rooms; E. McCune, Contr.

Government and State

Ky., Harrodsburg—Treasury Dept., Jas. A. Wetmore, Act. Supv. Archt., Washington, D. C., let contract at \$62,200 to Fanning & Sweeney, Jefferson Bldg., Greensboro, N. C., for post office. 11-6

Tex., Mexia—Treasury Dept., Jas. A. Wetmore, Act. Supv. Archt., Washington, D. C., let contract at \$71,045 to Samford Bros., Inc., 301 Washington Ave., Montgomery, Ala., for post office; brick, struct. clay tile, rein. conc., cast stone, steel windows, steel rolling doors, 2 stories and basement, 65x77 ft., tile roof, tile, marble and conc. floors, metal lath. 11-6

Hospitals, Sanitariums, Etc.

Ga., Augusta—U. S. Veterans' Bureau, L. H. Tripp, Chief Const. Div., Arlington Bldg., Washington, D. C., let contract to W. P. Rose, Wayne Natl. Bk. Bldg., Goldsboro, N. C., for \$220,000 acute building, U. S. Veterans' Hospital; includes excavating, rein. conc. construction; hollow tile, cast stone, marble; floor and wall tile; rubber tile and linoleum floors; steel clothing bins; steel sash; steel stairs with slate treads; metal, slate and built-up roofing; roof ventilators; metal laths; stucco; insect screens; steam and electric distribution systems. 11-6

Mo., Jefferson Barracks, St. Louis—United States Veterans Bureau, Arlington Bldg., Washington, D. C., let contract at \$13,472 to Ernest Geo. Lay, Inc., 5473 N. Kingshighway, St. Louis, for alterations to N. P. Bldg. No. 25, U. S. Veterans Hospital. 11-6

Tenn., Chattanooga—Pine Breeze Sanatorium Bd. of Directors, J. J. Mahoney, Member, let contract to George Becking & Son, James Bldg., for \$35,000 men's building at Pine Breeze; 2 stories and basement, brick, fireproof, comp. and tile roof, terrazzo floors, steam heat; Wm. Crutchfield, Archt., First Natl. Bank Bldg. 3-27

Tex., New Braunfels—Southland Nature Cure Sanatorium, Inc., Dr. C. Reynolds, reported, let contract, on cost plus basis, to W. Sippel, New Braunfels, for \$150,000, 1- and 2-story, stucco, hollow tile, and rein. conc. sanatorium; clay tile roof; Harvey P. Smith, Archt.; Beretta-Stiles Co., Engr., both Natl. Bank of Commerce Bldg., San Antonio. 9-4

Tex., Randolph Field—Construction Quartermaster, Capt. A. W. Parker, let contract at \$41,700 to R. E. McKee, 1916 Texas St., El Paso, for post exchange and service station. 11-6

Hotels and Apartments

Ark., Little Rock—W. R. Donham, Rector Bldg., has permit for \$32,000, 2-story, brick veneer, 10-apartment, 808 N. Palm St.; M. F. Lawing, Contr., 4817 T St.

D. C., Washington—Westchester Co., G. Ring, Pres., Tower Bldg., having plans prepared by H. Harvey Warwick, Ambassador Hotel Bldg., for 8-story, 210x130 ft., brick, rein. conc., hollow tile, stone trim apartment, 39th St. and Cathedral Ave., N. W., 4th, 5th and 6th units to be erected on Cathedral Ave.; owner builds.

D. C., Washington—E. M. Willis, Jr., Tower Bldg., erect eight 2-story, brick and hollow tile apartments, Sherwood St. near 15th St., N. E.; tin roof, hot water heat, hardwood floors; Geo. T. Santmyers, Archt., 925 Fifteenth St.; owner builds.

D. C., Washington—Harry A. Kite, Inc., 1019 Fifteenth St., N. W., ready for sub-bids for \$50,000, 2-story, 32x45 ft., brick and hollow tile, apartment, 1013-21 Seventh St., N. E.; slag roof; owner builds; Geo. T. Santmyers, Archt., 925 Fifteenth St.

Fla., Miami Beach—A. Singer, 306 Euclid Ave., let contract to J. Albert, 735 Third St.,

for \$15,000, rein. conc., frame, conc. block and stucco, 4-apartment, Pennsylvania Ave. between 12th and 13th Sts.; B. Kingston Hall, Archt., 609 Collins Ave.

Fla., Miami Beach—Clarence Cobb, 4501 Prairie Ave., erect \$12,500, 2-story, rein. conc., conc. block and stucco, 4-apartment, Prairie Ave. near 46th St.; W. F. Bonsack, Contr., 528 Lincoln Road, Miami Beach; C. B. Schoeppl, Archt., 528 Lincoln Road, Miami Beach; LeJeune Road, French Village, Coral Beach; John and Coulton Skinner, Asso. Gables.

Fla., Miami Beach—Fletcher M. Locke, Indianapolis, Ind., and Miami Beach, let contract to Miami Beach Construction Co., 1661 Alton Road, for \$12,600, 2-story, rein. conc., conc. block and stucco, 4-apartment, Drexel Ave. between 12th and 13th Sts.; Carlos B. Schoeppl, Archt., 528 Lincoln Road, Miami Beach; John and Coulton Skinner, Asso. Archts., LeJeune Road, French Village, Coral Gables.

Fla., Miami Beach—W. H. Bishop, 1412 Ocean Drive, erect \$10,000, 2-story, 4-apartment, 4604 Meridian Ave.; C. B. Schoeppl, Archt., 528 Lincoln Road, Miami Beach; John and Coulton Skinner, Asso. Archts., LeJeune Road, French Village, Coral Gables; owner builds.

Ga., Atlanta—R. P. Pool, 664 Linwood Ave., N. E., erect \$75,000, 2 and 3-story, 38x209 ft., brick and conc. apartment; comp. roof; owner, Archt.-Bldr. See Want Section—Building Material and Equipment.

Ga., Macon—Hotel Dempsey, Herbert B. Block, let contract to Angle-Blackford Co., Am. Natl. Bank Bldg., Greensboro, N. C., for \$375,000, 12-story, 50x75 ft., rein. conc., struct. steel, brick and tile, 200-room addition; tar and gravel roof, stone trim, tile and terrazzo floors; Wm. L. Stoddard, Archt., 50 E. 41st St., New York. 10-7

Md., Baltimore—Jos. A. Gallagher, 3904 Canterbury Road, soon ready for sub-bids for alterations to 3-story brick apartment, 606 E. Preston St.; owner, Archt.-Bldr.

Mo., Clayton, St. Louis—Alco Improvement Co., 808 Chestnut St., erect \$30,000, 1-story, 51x62 ft., brick 6-apartment, 7552 Wydown St.; conc. foundation, asphalt roof, steam heat; Swan Supply Co., Contr., 808 Chestnut St.; Nolte & Nauman, Archts., 3832 W. Pine St., all St. Louis.

Mo., St. Louis—B. Mizera, 1318 N. 20th St., erect \$10,000, 2-story, 38x60 ft., brick apartment, 5723-25 Woodland St.; asphalt shingle roof, hot air heat; Harold C. Simon & Co., Bldr., 4155 N. Newstead St.; J. E. Tarling, Archt., Grand and St. Louis Sts.

Mo., St. Louis—C. W. Watson, 1542 S. Theresa St., erect two 2-story, 28x48 ft., brick tenements, 50-1517 Winona St.; \$16,000; asphalt shingle roofs, warm air heat; owner, Archt.-Bldr.

Mo., St. Louis—Geneva Investment Co., 721 Chestnut St., erect one and two-story stores and tenements, 6195-00 Kingsbury St.; \$20,000, 72x29x118 ft., brick, comp. roof; owner, Archt.-Bldr.

Mo., St. Louis—R. Sanders, 3901 Wilmington St., erect \$10,000, 2-story, 36x49 ft., brick tenement, 4219-21 Bates St.; comp. roof, hot air heat; owner builds.

N. C., Mount Airy—Matt Hines has contract for \$40,000 hotel, Franklin and Willow Sts.; to be leased to S. A. and Hugh L. Hennis; 3 stories and basement, 40x70 ft., shale brick, Mt. Airy granite trim; vapor heat; self-service electric elevator.

Okla., Tulsa—Associated Realty Co. started work on \$30,000, 3-story, brick, conc. and hollow tile, 32-apartment; Rundquist Construction Co., Contr., 1215 S. Detroit St.

Okla., Tulsa—G. L. Cook, Owner and Bldr., soon start work on \$20,000, 2-story, 40x100 ft., brick, conc. and hollow tile apartment.

Tenn., Union City—Union City Hotel Co. let contract at \$67,300 to Meers & Wallenta, 63 S. Third St., Memphis, for 5-story and basement, rein. conc., brick, fireproof hotel on S. First St.; comp. built-up roof, steam heat, 85 rooms; electric, \$5505, Standard Electric Co., 591 Linden St., Memphis; heating and plumbing, \$25,000, Merryman-Wilson Co., Union City; elevators, \$3288, Otis Elevator Co., 248 Court St.; Anker & Hansen, Archts., Shrine Bldg., both Memphis. 10-23

Va., Petersburg—Bath Springs Hotel Corp., S. M. Owen, Pres., 214 Cameron Ave., Colonial Heights, J. C. Pamplin, Sec.-Treas., organized to build and operate apartment hotel, Colonial Heights, on Richmond-Petersburg Pike; work of clearing site has begun; J. W. Smith and O. C. Euhlin, Contrs.; Lee, Smith & Vandervoort, Archts., Sixth and Franklin Sts., Richmond.

Miscellaneous

Fla., Miami Beach—R. D. Wirth has permit for \$10,000 mortuary, Washington Ave.; C. E. Shappell, Contr., 1350 Collins Ave.; V. H. Nellenbogen, Archt., 925 Lincoln Rd.

Md., Baltimore—C. Wilbur Miller, Baltimore Trust Bldg., let contract to M. L. Robertson, 3408 Chestnut Ave., for stable and garage in Worthington Valley; plans by office of Jos. Evans Sperry, Calvert Bldg.; Herman F. Doeelman, Engr., Baltimore Trust Bldg. 11-13

Miss., Greenville—Greenville Country Club, Dr. D. C. Montgomery, Chmn., Bldg. Comm., burned structure; James J. Broadwell, erect \$13,000 clubhouse to replace previously Archt., Sterick Bldg., Memphis, Tenn.; Ernest Barbay, Contr., Leland Highway, Greenville. 7-3

W. Va., Clarksburg—Boyd Anderson Restaurant Corp., Frank H. Johnson, Pres.-Gen. Mgr., 407 W. Main St., started work on \$12,000 improvements to restaurant; Henry Haselbacher, Contr., 1400 West Virginia St.; S. W. Ford & Co., Archts., Lat-stetter Bldg.

Railway Stations, Sheds, Etc.

Okla., Tulsa—A. L. Hall Sheet Metal Works have contract for sheet metal, D. C. Sneed Plastering Co., Thompson Bldg., plastering, and R. M. Burchett, painting for \$1,000,000 Union Station for Tulsa Union Terminal Co.; exterior finishing commenced; Manhattan Construction Co., Gen. Contr., Court Arcade. 10-2

Schools

D. C., Washington—Seminary of Society of Atonement, Harwood Road, N. E., let contract to John J. Galvin, 4215 Yuma St., N. W., for additions and alterations to 2-story, brick and cast stone building; slate and tin roof, hot water heat; J. J. Stanton, Archt., 160 Fifth Ave., New York.

D. C., Washington—District Commrs., Room 509, Dist. Bldg., let contract at \$1,249,000 to National Construction Co., Tower Bldg., for Theodore Roosevelt High School; A. L. Harris, Municipal Archt., Dist. Bldg. 11-20

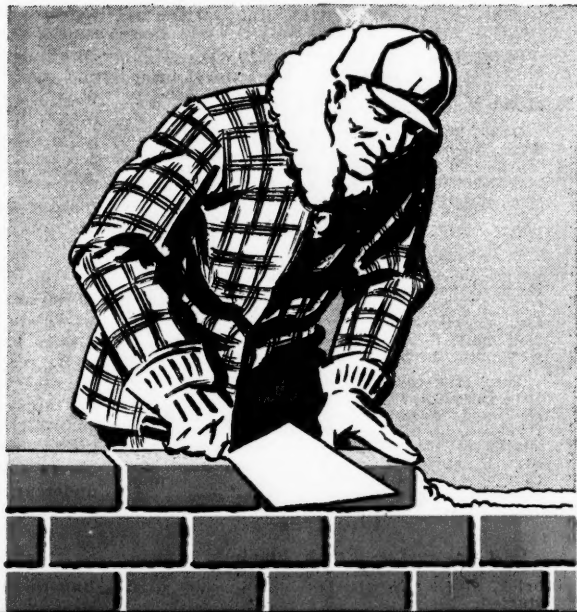
D. C., Washington—Following sub-contracts awarded on Buildings Nos. 1, 2 and 3 of Women's Dormitory group at Howard University for which Malatico Construction Co., 805 Fifth St., N. W., has general contract: Excavation, Jake Puterbaugh, 805 Fifth St., N. W.; conc. work, S. D. Moses, Mills Bldg.; stone work, R. B. Phelps, 8th and Douglas Sts., N. E.; struc. steel and erection, millwork, finish hardware, Barber & Ross, 11th and G Sts., N. W.; misc. iron, Fred Gichner, 1214 D St., N. W.; plumbing and heating, I. Fleund, 64 O St., N. W.; electrical work, Harry Alexander, 1800 E St., N. W., all Washington; waterproofing, caulking, slate roofing, snow rails, sheet metal work, Philip Carey Co., 1400 Moreland Ave., Baltimore; steel bucks and jacks, elevator doors, metal doors, Richmond Fireproof Doors Co., Richmond, Ind.; kalamain doors, United Metal Products Co., Canton, Ohio; brick work by general contractor; bids closed on plastering, glass and glazing, elevators, painting, rough lumber, cold storage work, linoleum floors; A. I. Cassell, Archt., for University; Walter M. Ballard Co., 1722 Connecticut Ave., N. W., has contract at \$23,213 for installation kitchen equipment and furniture in Bldg. No. 1. 11-20

Ga., Gainesville—Col. Sandy Beaver, Riverside Military Academy, remodel Golf Club Bldg. for residence; Burge & Stevens, Archts., Marietta Bldg., Atlanta; ready for bids about Nov. 28.

La., Monroe—Ouachita Parish School Bd., T. O. Brown, Supt., rejected bids and receives new bids Nov. 29 for \$25,000, 1-story, brick and steel gymnasium at high school; 92x110 ft., brick, hardwood floors on conc. base; J. W. Smith & Associates, Ouachita Natl. Bank Bldg. 11-13

La., New Orleans—Following additional sub-contracts awarded on Academic High School for Girls for which J. A. Petty & Sons, Inc., Audubon Bldg., have general contract at \$525,985: Comp. roof, W. M. Bennett Roofing Co., 4300 Melpomene St.; lumber, Bushy Lumber Co., 5708 Pontchartrain Blvd.; plumbing and heating, Dee Brown, 1912 St. Charles Ave.; sheet metal work, Acme Blow Pipe & Sheet Metal Works, 713 Magalzne St.; Donovan steel windows, Wood-er and Wight Co., Ltd., 451 Howard Ave.; misc. iron, J. R. Sutton, 4724 Banks St.; struc. steel, Virginia Bridge & Iron Co., Whitney Bank Bldg., all New Orleans; E. A. Christy, Supv. Archt. 11-20

La., Rayville—Following sub-contracts awarded for 3-story, rein. conc., brick and stone trim high school for which W. Murray Werner, Commercial Bank Bldg., has general contract at \$131,869: Rein. steel,



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Md., Towson — Greenwood School, Miss Mary Elcock, Boyce Ave., let contract to L. L. Chambers, 36th St. and Roland Ave., Baltimore, for \$10,000, 3-story, 43x30 ft., brick addition; Lawrence Hall Fowler, Archt., 347 N. Charles St., Baltimore. 11-13

Mo., Clayton, St. Louis—Bd. of Education Jackson and Maryland Aves., erecting \$200,000 Forsythe Grade School; started work on second floor; Kellerman Contracting Co., Gen. Contr., Buder Bldg.; heating, Strong Heating Co., Chemical Bldg.; plumbing, Moynihan & Son, 1927 N. Union St.; electric, Koenenman Electric Co., 1420 Pine St., all St. Louis. 11-20

Mo., Kansas City—Bd. of Education let contract to A. T. Harper Construction Co., 6235 E. 11th St., for \$150,000, 2-story and basement, brick, rein. conc. and stone addition to Border Star School; C. A. Smith, Finance Bldg. 11-13

Okla., Middleburg—Bd. of Education let contract at \$13,000 to Maddox & Morrison, Blanchard, for 1-story, brick, 6-room school; E. H. Eads & Co., Archts., Chickasha. 11-20

Okla., Oklahoma City—Bd. of Education, J. G. Stearley, Clk., let contract to Wm. Lambert Construction Co., 416 N. Walker St. (contract originally awarded to J. W. Mann now deceased), for \$260,000 Taft Junior High School; 3 stories, 375x170 ft., brick, rein. conc. and stone; Layton, Hicks & Forsythe, Archts., Cotton-Grain Exchange Bldg. 10-16

S. C., Orangeburg—Bd. of School Commrs., W. A. Livingston, Chmn., let contract at \$59,229 to Lupo & Holcomb, Columbia, for 2-story and basement, brick, stone trim, 12-classroom and auditorium school on Ellis Ave.; w od floors, steam heat; J. B. Urquhart, Archt., Palmetto Bldg., Columbia. 11-13

Tex., San Antonio—City votes Dec. 18 on \$1,750,000 bond for following improvements: South Side School; Junior High School in Woodlawn section; \$125,000 for lockers and showers for eight Junior schools; J. A. McIntosh, Pres., Bd. of Education; Phelps & Dewees, School Archts., Gunter Bldg. 11-20

Stores

D. C., Washington—M. Blumenthal, 5548 Connecticut Ave., erect \$10,000, 1-story, 25x75 ft., brick, stone and cinder block store, 5037 Connecticut Ave.; slag roof, electric wiring; James L. Parson, Jr., Contr., 1427 Eye St., N. W. 11-13

D. C., Washington—Thomas E. Clark, Inc., 3831 Kansas Ave., let contract at \$11,859 to Lee T. Turner, 1366 Perry Place, for 1-story, 25x102 ft., brick, stone front plumbing shop and show rooms, 3407 Connecticut Ave.; terrazzo floors, slag roof, brick foundation; Upman & Adams, Archts., Woodward Bldg. 11-13

Ga., Marietta—Mrs. Elizabeth R. Baxter let contract to G. T. Bettis for rebuilding 2-story, 27x75 ft., brick store recently damaged by fire; all material purchased. 11-20

Md., Baltimore—Dominick Tambouro, Liberty Heights and Ferndale Aves., let contract to R. Cerniglia & Sons, 604 Washington Blvd., for \$10,000, 1 or 2-story, 30x70 ft., brick store, 5112-20 Liberty Heights Ave. 11-13

Mo., St. Louis—C. Freyer, 6192 Kingsbury St., erect one-story stores, 414-22 Skinner Road; 68x130 ft., brick, comp. roofs, steam heat, \$12,000; Southampton Building Co., Archt.-Bldr., 4211 S. Kingshighway. 11-13

Mo., St. Louis—F. W. Plumer, 3875 Connecticut St., erect \$15,000, 1-story, 81x139 ft., brick salesroom, 1021-23 Chateau St.; Certain-teed roof, steam heat; Nat. Abrahams, Inc., Archt.-Bldr., Equitable Bldg. 11-13

Mo., St. Louis—O. A. Knell, 2848 Gravois Ave., has permit for \$10,000, 2-story, 65x64 ft., brick store, 2842 Gravois Ave.; tar and gravel roof, steam heat; Ruhaack & Co., Bldr., 2623 Texas St.; E. Preisler, Archt., 133 S. 11th St. 11-13

Okla., Oklahoma City—Dr. C. E. Barker, 1200 N. Walker St., started work on \$20,000, 1-story, brick store; C. E. Huffman & Son, Contrs., S. W. Natl. Bank Bldg.; Edw. L. Gahl, Archt., Continental Bldg. 10-30

Okla., Tulsa—V. H. Foltz, 745 N. Birmingham Place, started work on 1-story, brick, hollow tile and conc. store to be leased to Jewel Tea Co., 1444 E. Third St. 11-13

Okla., Tulsa—S. H. Kress & Co., 114 Fifth Ave., New York, let contract to J. W. Van Horn, 526 S. Kenosha St., for erecting 6-story, brick, terra cotta and rein. conc. addition and remodeling present building, 7 W. Third St.; \$350,000; Edw. F. Seibert, Company Archt. 11-6

Tenn., Knoxville—W. P. Washburn, Tennessee Bank Bldg., let contract at \$11,000 to H. E. Rogers, 977 Lee St., for 1-story, 46x84 ft., brick building, Market and Cumberland Sts., for 5 stores; excavation begun; pine over conc. floors, built-up roof; Baumann & Baumann, Archts., 815 Market St. 11-20

Tex., Houston—McCrory Stores Corp., 1107 Broadway, New York, let contract to T. R. Hubbard Construction Co., 1507 Shepherd St., Houston, for \$225,000, 3-story and basement, 50x100 ft., conc. and steel store, 507 Main St.; R. C. Zeissler, Construction Supt. for Company. 10-23

Theatres

Ga., Gainesville—Frank Plaginos let contract to E. L. Prater for \$60,000, 2-story, brick, stone trim theatre; comp. roof; work started. 11-13

Warehouses

Md., Baltimore—State, F. Brook Matthews, Ch. State Tobacco Inspector, Charles and Conway Sts., let contract to Morrow Bros., Fidelity Bldg., for remodeling 4-story, 150x120 ft., brick warehouse and erecting 2-story addition; C. H. Osborne, Engr., 222 W. Franklin St. 10-9

Mo., St. Louis—Central Transfer Co., 401 S. Third St., started work on \$50,000 building, 14th and Mullanphy Sts.; Humes-Depl Co., Contrs., Arcade Bldg.; Aegerter & Bailey, Archts., Rwy. Exch. Bldg. 11-13

Tex., Dalhart—Roberts & Oliver Lumber Co. started work on 24x60 ft. office and warehouse, 4th St. and Keeler Ave.; old office building will be remodeled for residence by E. S. Carter. 11-13

Trade Literature

Stainless Iron—Four attractively designed booklets form the contents of a folder on "Enduro Stainless Irons" being distributed by the Republic Steel Corporation, Youngstown, Ohio. One booklet gives general information about make-up and qualities of "Enduro" alloy metals. "Enduro K A 2," its analysis, properties, and applications for high temperature service in combination with high pressures, is covered in the second booklet. The third of the series features "Type S Enduro," a general purpose material, while the fourth has as its subject "Enduro A A," a ductile, non-hardening alloy containing approximately 17 per cent chromium and a carbon content under .10 per cent, with physical properties, according to the manufacturer, equal to a high grade medium carbon steel. Graphs, tables and appropriate illustrations of applications of the Republic's stainless irons are also given. 11-13

Metal Ceilings—"Beautiful Ceilings and Walls of Metal" is the title of a 16-page booklet issued by the Milcor Steel Co., Milwaukee, Wis. In addition to illustrations of installations of Milcor metal ceilings, the booklet explains their use in schools, churches, banks, hotels, theatres, residences, and other types of buildings. A special feature of the Milcor service, according to the company, is the designing department which furnishes plans and blue prints free on request. 11-13

High Pressure Welding—The Hedges-Walsh-Weldner Company, Chattanooga, Tenn., are distributing a folder describing results of tests of their "HWW Hy-Pressure-Weld" joints, indicating high anti-corrosive and ductile qualities. Development of this weld, the company announces, is a perpetuation of its policy to anticipate demands and requirements of boiler users. The process is being employed in the manufacture of high-pressure vessels such as fractionators, absorbers, accumulators, stripping drums, bubble towers, etc. 11-13

Coal Mine Equipment—Sullivan mine car air compressors and Sullivan Ironclad coal cutters are featured in Bulletins S3-U and S2-H, respectively, issued by the Sullivan Machinery Co., Chicago. Bulletin S3-U illustrates and gives facts about the WK-22 and WK-44 types of compressors for underground mining service, while Bulletin S2-H covers Class "CE-7" Sullivan Ironclad coal undercutters of the chain feed type. 11-13

Southern Timber Growing, etc.—Technical Bulletin No. 204 of the United States Department of Agriculture, prepared by R. D. Forbes, former director of the Southern Forest Experiment Station, gives facts about timber growing, logging, and turpentine practices in the Southern pine region and measures necessary for keeping forest lands productive and for producing full timber crops. 11-13

Windows and Casements—Catalogs for Campbell pivoted industrial windows, Campbell projected windows and Campbell casements, are being distributed by the Campbell Industrial Window Co., Inc., New York. Each catalog, in addition to engineering data and details, presents illustrations of the felt weatherstrip feature of Campbell windows. 11-13

Inaugurates Pension System.

The Gray Lumber Co., Waverly, Va., is making provision for a pension system, under which white workers reaching 65 years after being in the company's employ for 20 years will receive a pension of \$30 monthly, and colored workers under the same conditions will receive \$15 monthly. On October 27, 1931, the company proposes to place the sum of \$80,000 with the New England Mutual Life Insurance Company for an indefinite period at 4 1/4 per cent interest, payment of pensions to be started after November 1, 1935. Pensions are to continue for 30 years from this latter date. 11-13

Free Site for Plant

S. G. Robertson, president of the First National Bank, and D. E. Beasley of the Beasley Hardware Co., as members of the Industrial Committee of Dickson, Tenn., are seeking an industry for their town. Located near Nashville, Dickson has a population of about 4,000 and the committee would like to secure an industry such as foundries or manufacturing plants employing from 100 to 400 workers. A five to ten-acre site on the railroad will be donated and the committee writes that plenty of electric power is available. 11-13

Masonite Corporation Officials.

The Masonite Corporation, Chicago, announces appointment of J. Larson, Jr., as general traffic manager; H. R. Paul, assistant traffic manager, and A. L. Swanson, credit manager. 11-13



Monighan Walking Dragline ready to start work on Section 4-D of New Madrid Floodway. J. J. McCaughey Company, and States Construction Company, Chicago, Contractors.

And Still Another Monighan on the Mississippi!

This Monighan Walking Dragline has just been erected and is ready to go into action on the New Madrid floodway job, near East Prairie, Mo.

This machine is a 6-W Walker, one of the larger models. It has a 135 ft. boom, with 5 yd. bucket, and weighs 275 tons.

In spite of its great size and weight this machine works and moves as easily and as fast as smaller Walkers. It can step off in any direction, from any position, on any kind of ground except that actually under water. This means that it can be maneuvered into position rapidly regardless of local conditions and obstructions. A Walker can step off directly across, or at any angle with the line of work, as easily as it parallels or follows it.

This ability to keep in the most advantageous position for continuous operation means a lot in the way of time saved, lower labor cost, greater speed, and economical operation. It pays to use Walkers.

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WANT SECTION

THE CLASSIFICATIONS IN THIS SECTION ARE:

Machinery and Supplies

Under this heading are reported requests for data, prices and literature and information on machinery, supplies and miscellaneous materials of a wide variety.

Building Materials and Equipment

This division comprises all classes and kinds of materials and equipment used in building and construction projects of every kind.

Bids Asked

Includes bids asked by U. S. Government, States, districts, municipalities, firms and individuals for machinery, materials, supplies and construction work.

Items in this department are published without charge and these columns are open for the publication of wants of all kinds relating to construction work, machinery, materials and supplies.

Machinery and Supplies

Blue Printing Machines.—Morrison Furniture & Fixture Co., Statesville, N. C.—Wants prices and data on used blue printing machines to handle blue prints up to 36x72.

Engine (Corliss).—Equitable Equipment Co., Inc., Elysian Fields Ave. and Florida Walk, New Orleans, La.—Wants prices and data on 500-kw. uniflow, or 4-valve, non-releasing Corliss engine, 125-lb. steam pressure, 10-lb. back pressure, direct connected to electric generator, d. c., 3-wire, 250/125 volts; unit must be modern and in first-class condition.

Generator.—See Engine (Corliss).

Die Casting Machines.—Economy Street Marker Co., Littlefield Bldg., Austin, Tex.—Wants prices and data from manufacturers of die casting machines to produce $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ -lb. aluminum alloy castings.

Hand Saws (Electric).—Thompson Construction Co., P. O. Box 66, Rosemary, N. C.—Wants prices and data on electric hand saws to cut 3-in. lumber.

Nailing Machine.—C. P. Cropper Fish Co., Ocean City, Md.—Wants prices and data on machine suitable for nailing fish boxes; used machine preferred if in A-1 condition.

Natural Bridge of Virginia, Inc.—John Temple, Resident Director, Natural Bridge, Va., wants following:

- (1) **Generating Set**—100 kw., 60 cycle, 3-phase, 2300 volts a. c., driven by crude oil engine
- (2) **Ice Plant**—electrically operated, 60 cycle, 3-phase, 220 volts, a. c.

M. B. Parker, 1912 Oak St., Chattanooga, Tenn.—Wants prices and data on following:

- (1) **Lathe (Engine)**—22 or 24 in., Q. C. G., screw cutting, good condition
- (2) **Shaper Vise**—for use on 25-in. shaper.

W. M. Smith & Co. (Mchy. Dealer), Box 1709, Birmingham, Ala.—Wants prices and data on following:

- (1) **Clamshell Bucket**— $1\frac{1}{2}$ yd., used.
- (2) **Generator (Turbo)**— $7\frac{1}{2}$ kw., to operate scrap magnet
- (3) **Generator**—1000 kw., 60 cycle, 3 phase, 2200 volts, 150 lbs. steam pressure

Miscellaneous

Automatic Sprinkler System.—F. M. Moise, Sumter, S. C.—Wants prices and data on automatic sprinkler system.

Barrels (Sugar).—S. B. Penick & Co., Asheville, N. C.—Wants prices and data from manufacturers of barrels for sugar.

Display Racks.—Mrs. B. E. McKelvey, P. O. Box 28, Oakville, Tenn.—Wants prices and data from manufacturers of display racks for bags of peanuts, pecans, potato chips, etc.

Funeral Supplies.—S. M. Perkins, Jellico, Tenn.—Wants prices and catalogs on shrouds, dresses and suits, cloth material for lining and covering wooden caskets and ready manufactured pillow sets for lining caskets.

Steel Plates and Angles.—McMullen & Glass (Machinists and Welders), Orange, Tex.—Wants prices and data on 20 tons plates, 5/16 x 60 in. by 40 ft.; 5 tons angles, 6 x 6 x $\frac{1}{2}$ in., long lengths; 5 tons angles, 4 x 4 $\frac{1}{2}$ in., long lengths; can use first class used material.

Stereopticon Slides.—B. W. Spilman, 604 N. Queen St., Kinston, N. C.—Wants prices and data from firms in position to make stereopticon slides.

Building Material and Equipment

J. V. & R. T. Burkes, Inc., 1112 American Bk. Bldg., New Orleans, La., estimating on \$5,000,000 Louisiana State Capitol, Baton Rouge, bids Dec 10, wants all sub-bids and material prices by Dec. 8: Weiss Dreyfous & Seiferth, Inc., Archts., Maison Blanche Bldg., New Orleans.

The John W. Cowper Co., Inc., State Planters Bank Bldg., Richmond, Va.—Bidding on \$840,000 school building, Army Medical Center, Walter Reed Hospital, Washington, and wants sub-bids by Jan. 3.

J. P. Little, Sr., Engr., 700 N. Ft. Harrison Ave., Clearwater, Fla. wants prices and data from manufacturers of:

Roofing (Felt).

Lockwood & Poundstone, Archts., Marietta Bldg., Atlanta, Ga., want prices on following for \$100,000 high school, Thomasville, Ga.:

Flooring—hardwood, terrazzo and tile

Rolling Partitions

Roofing—built-up

Steel Sash and Trim

Terra Cotta Trim

Vaults

Ventilators

Rube Sessions, Gen. Contr., Wells, Tex., wants prices and data on following for 25 frame dwellings 15 mi. East of Livingston, for State of Texas:

Windows (White Pine)—200—10x12, 8 light, plain

Doors (Fir)—150—2 ft., 6 in. x 6 ft. 6 in.

Rests (Steel)—150—3x3, with screws

Knob Locks—150

Roofing (Galvanized)—1600 pieces, 28 gauge, 7 ft.

Ridge Roll—750 ft., 8 in.

Lead and Oil—for inside and outside painting.

R. P. Pool, 664 Linwood Ave., N. E., Atlanta, wants prices on following for \$75,000 apartment:

Electric Refrigerators

Flooring—wood, linoleum, tile

Incinerator

Mail Chutes

Plaster Board

Roofing—asbestos shingle, tile

Steel Sash and Trim.

Bids Asked

Armor.—Bureau of Ordnance Navy Dept., Washington, D. C.—Bids Dec. 9 for 2271 tons armor.

Armature Winding Machine.—See Miscellaneous Machinery, etc.

Bolts (Carriage).—Marine Corps, Q. M. Dept., Washington, D. C.—Bids Dec. 1 for 2100 carriage bolts, delivery Quantico, Va.

Bridges.—State of Missouri—Bids for 37 bridges. See Construction News—Roads, Streets and Paving.

Bridge.—Maryland. See Construction News—Bridges, Culverts and Viaducts.

Broom Corn.—District Commrs., Washington, D. C.—Bids Dec. 1 for 70 bales broom corn, 300 lb. to bale.

Cooling Outfit.—District Commrs., Washington, D. C.—Bids Dec. 2 for combined milk cooling outfit and storage room.

Drill and Tapper.—See Miscellaneous Machinery and Tools.

Drill Press.—See Miscellaneous Machinery, etc.

Drills (Bench).—See Miscellaneous Machinery, etc.

Electric Fixtures.—Quartermaster Supply Officer, Washington, D. C.—Bids Dec. 1 for 9075 electric lighting fixtures.

Electric Supplies.—Quartermaster, Fort Hoyle, Md.—Bids Dec. 1 for fuse links, plug fuses, conduits, conduit covers, attachment plugs, electric bells, bushings, receptacles, wire, wire rope, thimbles, etc.

Fuel Oil Facilities.—Ch., Bureau of Yards and Docks, Navy Dept., Washington, D. C.—Bids Dec. 3 for steel tank, pump house addition, pumps and equipment and piping at naval operating base, fuel depot, Hampton Roads, Norfolk, Va.

Gears and Pinions.—U. S. Engr. Office, Memphis, Tenn.—Bids Dec. 3 for 8 cast steel cut spur gears and forged steel pinions.

Generator Set.—U. S. Engr. Office, Custom House, St. Louis, Mo.—Bids Dec. 10 for constructing and delivering ready for installation on U. S. dredge Ft. Chartres 100-kw. turbo generator set, 100-kw. turbo generator set and 1000-h. p. motor.

Lathe.—See Miscellaneous Machinery and Tools.

Lumber.—Commanding Officer, Aberdeen Proving Ground, Md.—Bids Dec. 1 for 2 carloads yellow pine lumber and 2 carloads spruce lumber.

Memorial.—Constructing Quartermaster, Munitions Bldg., Washington, D. C.—Bids Dec. 18 for Wright memorial, Kitty Hawk, N. C. See Construction News—Miscellaneous Construction.

Miscellaneous Machinery, etc.—Bureau of Supplies and Accounts, Navy Dept., Washington, D. C.—Bids Dec. 16 for motor driven drum armature winding machine, taps, dies, tap wrenches and diestocks motor driven bench drills, motor driven drill press.

Miscellaneous Machinery and Tools.—Bureau of Supplies and Accounts, Navy Dept., Washington, D. C.—Bids Dec. 9 for refrigerating plant complete and spare parts, motor driven planer and jointer, motor driven engine lathe, motor driven drill and tapper, files, augers, wood boring bits, chisels, knives, scrapers, oxy-acetylene cutting and welding torches.

Miscellaneous.—Panama Canal, Office of Gen. Pur. Officer, Washington, D. C.—Bids Dec. 10 for following, Sch. 2609:

Garbage trucks, truck dump bodies, water meters, steel racks, automobile lifts, air stands, water-tapping machine, sextant, planimeter, surfacing machine, variety saw, etc.

Planer and Jointer.—See Miscellaneous Machinery and Tools.

Refrigerating Plant.—See Miscellaneous Machinery and Tools.

Revetment.—U. S. Engr. Office, Postal Telegraph Bldg., Kansas City, Mo.—Bids Dec. 17 for constructing about 600 lin. ft. standard revetment, Missouri River, Weaver's Bend, Missouri.

Road.—Tallulah, La. See Roads, streets and Paving.

Roads.—State of South Carolina—Bids for 10 roads. See Construction News—Roads, Streets and Paving.

Roads.—State of Missouri—Bids for 50 roads. See Construction News—Roads, Streets and Paving.

Roads.—State of Virginia—Bids for 2 roads. See Construction News—Roads, Streets and Paving.

Sewer Construction.—City of Mobile, Ala., Wright Smith, Engr.—Bids Dec. 9 for storm sewers work includes 3790 ft. of 6-in., 1845 ft. of 10-in., 2480 ft. of 12-in., 725 ft. of 15-in., 1390 ft. of 18-in., 1455 ft. of 21-in., and 1296 ft. of 24-in. pipe; manhole, inlets, special basins, etc.

Sheet Steel.—Marine Corps, Q. M. Dept., Washington, D. C.—Bids Dec. 1 for 200 sheets (5560 lb.) sheet steel, delivery Quantico, Va.

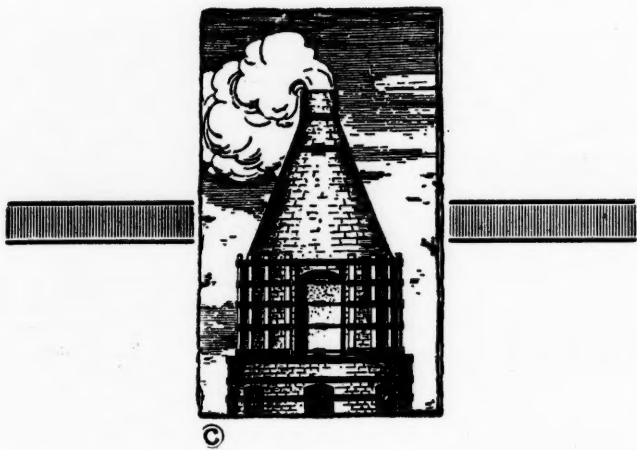
Shore Pipe.—U. S. Engr. Office, Jacksonville, Fla.—Bids Dec. 1 for approx. 1000 lin. ft 12-in. diam. shore pipe.

Strapping, etc.—Marine Corps, Q. M. Dept., Washington, D. C.—Bids Dec. 3 for 1200 lb. strapping and 8000 seals, delivery Quantico, Va.

Street.—Mobile, Ala.—See Construction News—Roads, Streets and Paving.

Streets.—Mobile, Ala. See Construction News—Roads, Streets and Paving.

Tank and Tower.—U. S. Veterans' Bureau, Arlington Bldg., Washington, D. C.—Bids Dec. 16 for constructing steel water tank and tower, U. S. veterans' hospital, Perry Point, Md.



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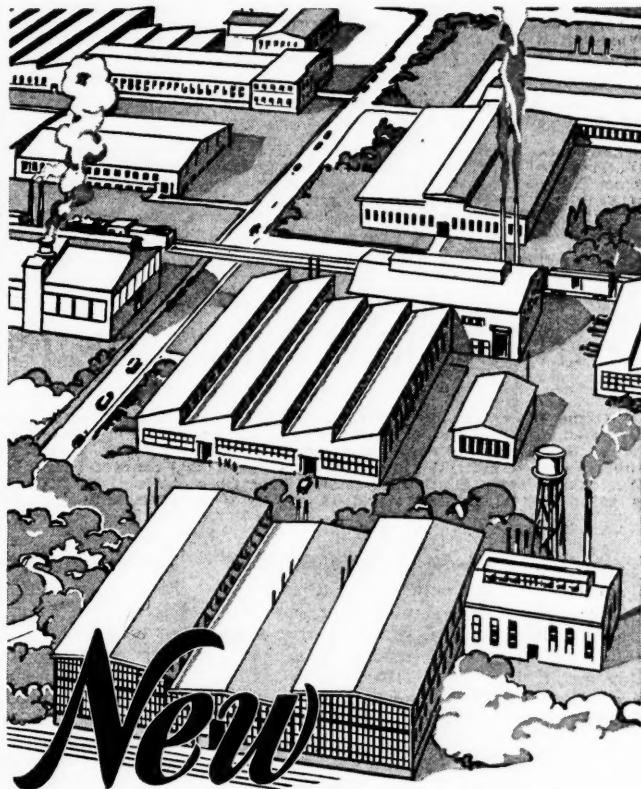
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Tender—Commissioner of Lighthouses, Washington, D. C.—Bids Dec. 10 for construction of tender of Violet class; also for machinery.

Torches (Cutting and Welding).—See Miscellaneous Machinery and Tools.

Towboats Engines and Boilers.—Inland Waterways Corp. 320 Magazine St. New Orleans, La.—Bids Dec. 1 for 3 sister towboats of 1000-h. p., steel, storm wheel, steam boats for Mississippi River, and 3 sets of engines, 3 pairs of boilers.

Towers (Steel).—Office of Corps Area Engineer Headquarters Third Corps Area, 311

St. Paul Pl., Baltimore, Md.—Bids Dec. 15 for fabricating, delivering and constructing 2 rigid searchlight towers, Ft. Monroe, Va.

Water Mains.—City of Houston, Tex.—Bids Dec. 3 for construction of c. i. water mains on various streets, including Tenth, Alston, Eleventh, Washington and Durham.

Water, Sewer, Drainage.—Sewerage and Water Board of New Orleans, New Orleans, La.—Bids Dec. 3 for furnishing labor and material on per centage basis for water works, sewerage and drainage construction during 1931; Contract 109-S, furnishing c. i. pipe and fittings; Contract 110-S, laying 24-in. and 30-in. c. i. sewage discharge main and 48-in. pressure main.

A. S. M. E. Officers and Meeting.

Roy V. Wright, newly elected president of the American Society of Mechanical Engineers, is to be installed in his new office at the society's fifty-first meeting in New York, December 1 to 5. Among topics to be discussed are stabilization of employment; industrial accident prevention; oil and gas power; aeronautics; management; transportation materials handling; hydraulics; fuels; textiles, and central station power.

Other officers chosen by the society for the 1931 period are: Vice-presidents—William A. Hanley, director of the engineering division of Eli Lilly & Co., Indianapolis; Thomas R. Weymouth, president of the Oklahoma Natural Gas Corp., Tulsa, and Dr. Harvey N. Davis, president of the Stevens Institute of Technology; Managers—William L. Batt, president of the SKF Industries, Inc., and chairman of the board of the Air Preheater Corp., New York; Herbert L. Whittemore, chief of the engineering mechanics section of the U. S. Bureau of Standards, Washington, and Harold L. Doolittle, chief designing engineer of the Southern California Edison Co., Los Angeles.

INDUSTRIAL NEWS OF INTEREST

Items of news about industrial, railroad or financial interests, building operations, construction work, municipal improvements, or the sale of machinery or the letting of contracts in the South or Southwest, are invited from our readers, whether they are advertisers, or subscribers, or not. We invite information of this character from readers in the North and West about their Southern business operations, as well as from Southern readers. News of value will be published just as readily when from non-advertisers as from advertisers.

G. E. Motor Operating Large Pump.

A deepwell pump, with a daily capacity of 5,500,000 gallons of water, is being operated at Reno, Nev., by a General Electric 4000-volt, 400-h. p. vertical hollow shaft motor turning at the rate of 1180 r. p. m. This motor, according to the company, is the largest vertical hollow shaft motor yet built, requires only a low starting current and is thrown directly on the line with the magnetic switch. A phase reversal relay prevents unscrewing the pump connections in case of power phase reversal. Top bearing of the motor is water cooled and is protected against overheating by a temperature relay which cuts down the pump if the bearing becomes overheated.

Electric Drives for Paper Machines.

Electric drives have been furnished by the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., for ten paper machines at the Hamilton, Ohio, plant of the Champion Coated Paper Co. Each drive includes a 220-h. p., adjustable speed, 1000 r. p. m., 250-volt d. c., bracket type motor, with bed-plate and outboard bearing for belted service, for driving the variable speed lineshaft; a 175 kw. synchronous motor-generator set with direct connected exciter, 250-volt d. c., 3-phase, 60-cycle, 2200 volt a. c., for supplying power to the adjustable speed motor. The control equipment provides electrically operated, full-voltage starting for the synchronous motor of the motor-generator set, and full-automatic, magnetic type combination control for the d. c. motor and generator.

High Temperature Refractories.

The Southern King Refractories, Inc., Atlanta, Ga., has purchased a plant to manufacture and distribute a complete line of high temperature refractories, as a licensee of the King Refractories Co., Inc., Buffalo, N. Y. Machinery and equipment is now being installed. The products, which include "Flame" high temperature refractories and "Mono" boiler baffles, will be distributed from Atlanta throughout the South and West. Officers elected at a recent directors' meeting include: E. H. Bollenbacher, president; Frederick H. Low, vice-president, and Thomas H. Scott, acting secretary-treasurer.

Moore Kiln for Greenville Plant.

Southern Shuttles, Inc., a new organization of Greenville, S. C., headed by Louis P. Batson and W. N. King, is installing a Moore cross-circulation kiln for use in seasoning shuttles, bobbins and other wood products to be manufactured by the corporation. The installation, which is manufactured by the Moore Dry Kiln Co., Jacksonville, Fla., will be placed in operation about January 1. It will use the "controlled air-drying" process, drying on very low temperatures, with relatively high humidities and fast reversible circulation.

Houston Machinery Agent.

The J. A. Fay & Egan Co., Cincinnati, Ohio, announces that sale of its machinery at Houston, Texas, formerly handled by the Peden Co., is now being handled by Wessendorf, Nelms & Co. George C. McCaine, for many years connected with the woodworking industry, will be in charge of the woodworking machinery department.

American Ice Cream for Europe.

A package of ice cream manufactured in Seattle, Wash., and shipped under "dry-ice" refrigeration to Berlin, Germany, will cover the distance nearly 7,000 miles, in 12 days, the longest shipment of ice cream yet made. Five gallons of ice cream ready for shipment with "dry-ice" weighs but 38 pounds. The present shipment is made through co-operation of the Western Dairy Products Co., Seattle, the Dry-Ice Corporation of America, at Seattle and New York, the American Railway Express Co., and the North German Lloyd. Previous long distance shipments of ice cream with "dry-ice" refrigeration have been made from New York to Hood River, Oregon, by mail, to Havana, Cuba, by express, and to Port au Prince, Haiti, by steamer.

President of Reading Iron Co.

P. N. Guthrie, Jr., former vice-president of sales, has been elected president of the Reading Iron Co., Reading, Pa., succeeding Leon E. Thomas, resigned, according to an announcement by A. J. Maloney, Chairman of the Board. Mr. Guthrie received initial training in the employ of the Pittsburgh firm of Park Brothers & Co., owners and operators of the Diamond Steel Works, the nucleus around which the Crucible Steel Co. of America was formed. After serving in an executive capacity with various organizations including the Longmead Iron Co., Conshohocken, Pa., and the South Chester Tube Co., Chester, Pa., he resigned from the Chester concern December 1, 1929, to become vice-president of the Reading Iron Co., and now succeeds to the presidency of that company.

Baltimore and Ohio Officials.

At a recent meeting of the board of directors of the Baltimore and Ohio Railroad, Daniel Willard was re-elected president of the company. Other executive officers re-elected are: George M. Shriver, senior vice-president; C. W. Galloway, vice-president in charge of operation and maintenance; Golder Shumate, vice-president in charge of freight traffic, mail and express and commercial development; H. B. Voorhees, vice-president; George F. May, secretary; E. M. Devereux, treasurer, and J. J. Cornwell, general counsel.

Training Course for Foremen.

The Chamber of Commerce, Dallas, Texas, is offering a course in foremanship training, free of charge to employees of members of the organization. Curriculum of the school, which meets each week for a six week period, follows the standard practices outlined by the United States Chamber of Commerce.

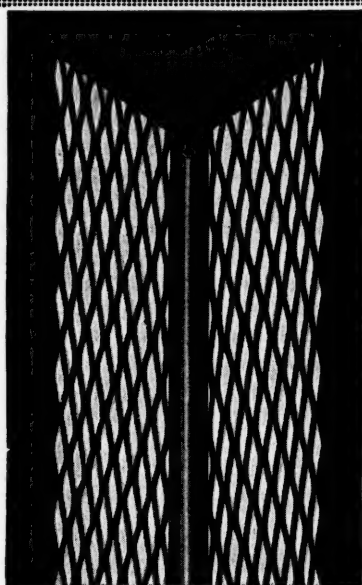
Murrill Goes to Detroit.

The Addressograph Co., Chicago, announces promotion of L. K. Murrill as sales agent at Detroit, to replace C. E. Jackson, who is on indefinite leave of absence due to ill health. F. K. Forrest, formerly special government representative at Washington, D. C., succeeds Mr. Murrill as sales agent at Baltimore.

El Paso Building Activity

El Paso, Texas—Local construction projects represent an expenditure of more than \$500,000, according to the El Paso Chamber of Commerce. Among the undertakings are a \$50,000 street improvement program, a \$150,000 plant for which contract has been let by Crane-O'Fallon Co., and a \$150,000 garage to be built by Charles N. Bassett, president of the State National Bank. Work has also started on the \$150,000 Elks Home.

Up to the end of October building permits for the year totaled \$2,585,464. November permits are paralleling those for October.



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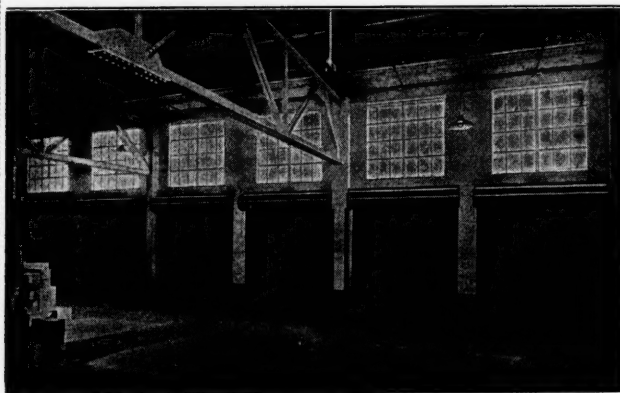
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Wood Preservative Industry Grows

[From the Forest Worker.]

In 1929 the number of plants in active operation in the United States giving preservative treatment to wood increased by 10, and the quantities both of wood treated and of preservatives used by such plants were greater than in any preceding year. The number of plants in operation was 203, including 131 of the pressure cylinder type, 56 of the nonpressure, (open-tank) type, and 16 equipped for both pressure and non-pressure treatment. The total number in existence was 213, of which 150 were commercial plants treating wood for sale or by contract, 33 were owned and operated by railroads, and 30 were the property of public utility corporations, mining companies, or Government agencies.

Information furnished by all the plants to the American Wood-Preservers' Association and the United States Forest Service has been compiled by R. K. Helphenstine, Jr., for the twenty-first annual report published by these agencies on the quantities of wood treated and preservatives used in the United States.

The total quantity of wood treated in 1929 was 362,009,047 cubic feet, or nearly 8 per cent more than was treated in 1928. Of this total 90 per cent was treated by pressure processes. Poles showed a larger increase in quantity treated than any other class of material, 12,828,341 cubic feet. Piles registered the next largest increase, 3,461,400 cubic feet. Wood blocks and crossties showed increases of 3,175,818 cubic feet and 2,726,094 cubic feet, respectively. The quantities of materials of different classes treated by the plants and of preservatives used by them during the year 1929 were as follows:

Quantity	1929
Material treated:	
Crossties—	
Hewed (number)	39,538,193
Sawed (number)	31,484,910
Total (number)	71,023,103
Switch ties (board feet)	173,107,698
Piles (linear feet)	25,324,255
Poles (number)	4,383,768
Wood blocks (square yards)	2,610,335
Construction timbers (board feet)	242,445,744
Cross arms (number)	3,158,165
Miscellaneous (board feet)	134,635,355
Preservatives used:	
Creosote—	
Domestic* (gallons)	134,063,664
Imported (gallons)	92,310,563
Total (gallons)	226,374,227
Petroleum (gallons)	29,656,181
Zinc chloride (pounds)	19,848,813
Miscellaneous—	
Salts (pounds)	1,188,148
Liquids (gallons)	38,410

*Including 57,914,236 gallons of distillate coal-tar creosote, 74,828,267 gallons of creosote coal-tar solution, 569,491 gallons of water gas-tar, and 751,670 gallons of water gas-tar solution.

Of the crossties treated by the plants in 1929, 33.7 per cent were oak, 24.8 per cent were Southern pine, and 10.8 per

cent Douglas fir. More than 64 per cent of the crossties were adzed or bored, or both, before treatment.

In general, lower prices were paid for preservatives in 1929 than in 1928.

MARINERS' MUSEUM AND PARK PROJECT

Big Development Started Near Newport News

Newport News, Va.—Plans for the development of a park and the construction of a mariners' museum on a tract of approximately 800 acres of land on the James River about 3 miles above Newport News, have been undertaken by the Mariners' Museum, W. Gatewood, manager, Newport News. The maximum width of the property is about one mile, the land including numerous branches and ravines of Waters Creek, also known as Watts Creek, the points of which will project into a large lake to be provided on the tract. The purpose of the museum is two-fold—to provide an educational center on marine history appealing to scholars in this and other countries and to instruct and interest people of the community, while the second purpose is to provide a park and buildings which will appeal to the aesthetic sense of visitors. The initial museum building will occupy a site on the creek to overlook the lake and James River. Plans are now under way but it is not expected to be contemplated before 1932. The structure will house an extensive library on marine subjects and exhibits arranged chronologically to illustrate progress in navigation.

A state highway between Newport News and Richmond crosses Waters Creek and a 3-span bridge 30 feet wide is under construction to span a lake of 160 acres to be formed by the dam to be built at the mouth of the creek. The highland is about 30 feet above mean low water and the lake surface will be about 10 feet above. A dam 70 feet wide and 600 feet long is under construction, with granite facings and balustrades. It will carry two roadways 24 feet wide, with a central raised walkway, and will incorporate a concrete wall resting on sheet piling as a water seal and will be provided with concrete spillways. The proposed park will be traversed by roads and paths and will be utilized as a game preserve. It is expected that an experimental model basin for investigating ship problems will be built adjacent to the museum property, although plans for this project have not been developed.

The entire development is being fostered by Archie M. Huntington, of the Newport News Shipbuilding & Dry Dock Company, and will be managed by a board of trustees.

Orders for Electrical Goods

New orders booked during the third quarter of 1930, as reported to the Bureau of the Census by 81 manufacturers of electrical goods, were \$217,818,000 as compared with \$276,732,000 for the second quarter of 1930. Total bookings for the first three quarters of this year are higher than for any previous year except 1929. The five-year, quarterly average for the 12-month period (1925-1929), was \$257,046,000.

TOTAL ORDERS FOR FIRST THREE QUARTERS OF EACH YEAR

1925	\$ 676,008,000
1926	730,647,000
1927	693,847,000
1928	747,495,000
1929	1,001,457,000
1930	793,283,000

Cotton Industry in October

From preliminary figures, the Department of Commerce announces that 33,966,918 cotton spindles were in place in the United States in October of this year, as compared with 33,959,172 in September, 1930, and 34,856,382 in October, 1929. The number operated at some time during October was 26,153,792, as compared with 26,087,004 in the preceding month and 30,107,434 in October, 1929.

The aggregate number of active spindle hours in October was 6,239,336,658, an increase over the 5,662,899,108 for September, but below the 9,003,522,885 recorded in October of last year.

Produce Licenses Necessary

Operatives in the produce trade who fail to obtain a Federal license before December 10 will stand in technical violation of the Perishable Agricultural Commodities law and will be subject to a fine of \$500, plus \$25 a day. The Department of Agriculture estimates that approximately 30,000 commission merchants, dealers and brokers in fresh fruits and vegetables in interstate trade are affected by the licensing law. Not all of this number, however, will be actually engaged in interstate trade at the time the law goes into effect. Applications for licenses may be obtained from the Bureau of Agricultural Economics, Department of Agriculture, Washington, D. C.

Gas Pipe Line Bridges

Matthews & Kenan, San Antonio, Texas, are consulting engineers for eight bridges, being constructed to carry natural pipelines across streams and rivers in four states at a total cost of \$320,000. Seven of the structures are for the Missouri Valley Pipe Line Co. and one for the Lone Star Gas Co.

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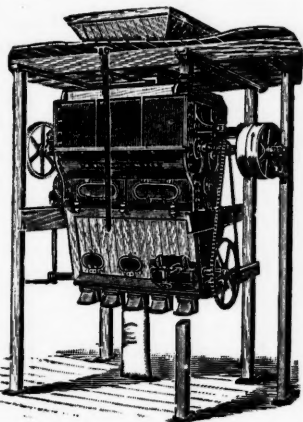
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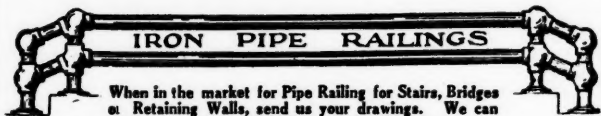



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BUILDING MATERIALS AT LOW POINT

Architects and Material Producers Cooperate to Bring About Permanent Economies in Construction Cost

Co-operation between architects and manufacturers of building materials is paving the way to a revival of construction activity, states F. S. Laurence, executive secretary of the Producers' Council, comprising about 60 of the country's largest manufacturing enterprises and affiliated with the American Institute of Architects.

"The outstanding fact in the present situation in the building trades," says the announcement, "is that material prices today are at the lowest point they are likely to reach, and representing, as material prices do, about 60 per cent of the cost of construction, the opportunity exists for building to go ahead more economically than if deferred until later, when construction has resumed its full normal swing and demand for materials forces prices up." Further it is said:

"The architects and producers of materials hope by conferring to arrive at methods in the development and use of materials which will realize permanent economies in cost of construction. Thus any advance in prices that may follow increased demand will stop short of the point of an inflation which would automatically check the tendency to build.

"Elimination of waste is one method of assuring this. It permits profits to be realized in part by eliminating needless costs heretofore encountered in production, selling, and methods of specifying and using materials pursued by architects and builders.

"With this view the Producers' Council a national body of manufacturers, is organizing local Producers' Council clubs in large cities throughout the country to provide local forums where these problems can be discussed by local groups of architects who will meet monthly for round table luncheon discussions with representatives of Producers' Council manufacturers located in the same cities, thus bringing about frequent direct conferences of the representatives of the planning and producing branches of the construction industry.

"Very substantial economies in the necessary costs of construction have already been accomplished by the joint effort of these two national bodies, which have eliminated much of the waste encountered in past years through misdirected efforts, the cost of which had to be absorbed eventually in total costs of construction."

Members of the Producers' Council include:

Frank Adam Electric Company, Albene Stone Company, Aluminum Company of America, American Brass Co., American Face Brick Association, American Radiator Company, American Rolling Mill Company, Armstrong Cork & Insulation Company, Benjamin Electric Manufacturing Company, E. L. Bruce Company, A. M. Byers Company, Celotex Company, Chamberlain Metal Weather

Strip Company, Common Brick Manufacturers' Association of America, Copper & Brass Research Association, Crescent Insulated Wire & Cable Co., Dahlstrom Metallic Door Company, Finishing Lime Association of Ohio, General Electric Company, Georgia Marble Company, The Headley Emulsified Products Company, Hercules Powder Company, Hoeger, Inc., Hollow Metal Manufacturers Association, Indiana Limestone Company, International Casement Company, Inc., and International Nickel Company.

Also, Jenkins Bros., Johns-Manville, David Lupton's Sons Co., Medusa Portland Cement Company, Midland Terra Cotta Company, Monarch Metal Weather Strip Corporation, Murphy Varnish Company, National Automatic Sprinkler Association, National Building Granite Quarries Association, National Electrical Manufacturers Association, National Electric Light Association, National Lead Company, National Lumber Manufacturers' Association, National Slate Association, National Terra Cotta Society, National Tube Company, Oil Heating Institute, Otis Elevator Company, Peelle Company, Portland Cement Association, Reading Iron Company, Revere Copper and Brass Incorporated, Sisakraft Company, Southern Cypress Manufacturers' Association, Spencer Turbine Company, Stanley Works, The Tyler Company, United Metal Products Company, Universal-Atlas Cement Company, Westinghouse Electric & Manufacturing Company, Wheeling Corrugating Company, and Wheeling Steel Corporation.

Natural Gas for Washington

To furnish natural gas for enrichment of manufactured gas distributed in Washington, D. C., and points in Maryland, the Maryland Gas Transmission Corp., an affiliated organization of the Columbia Gas & Electric System, has started work on the first section of a 20-inch pipeline from a point near Coatesville, Pa. to a point near Beaver Creek, Ky. The line will be 456 miles in length and will require 88,000 tons of steel pipe.

Extending from Coatesville to a point near Rockville, Md., the first section is now being built, and it is expected that before severe winter weather sets in the work will be completed to the Potomac River. Early in the spring active work will again be continued on the line, which is expected to be completed by mid-summer.

The line at Coatesville connects with four gas mains extending the entire length and along the southern boundary of the State of Pennsylvania to a point near Morgantown, W. Va., where a connection is made with the gathering system of a network of pipe lines which reach out into the gas fields of Ohio, Pennsylvania, West Virginia and Kentucky. Through this system the pipeline now under construction in Maryland will be enabled to sell gas, which is to be distributed at wholesale only, in the District of Columbia and points in Maryland.

Fertilizer a Farm Relief Factor

Adequate use of fertilizer as the soundest source of immediate relief for the farmer was advocated by Horace Bowker, president of the American Agricultural Chemical Company, New York, in a recent address to a group of farm paper editors. The fact that American crops annually take out of the soil 5,750,000,000 pounds more plant food than is returned, has convinced Mr. Bowker that the annual consumption of 8,000,000 tons of fertilizer is entirely too low.

"It is a clearly demonstrable fact that every dollar the farmer invests in fertilizer pays him at least \$3 in return," Mr. Bowker said.

In a cotton survey, it was found that the yield increases in proportion to the amount of fertilizer applied per acre, but costs ran as low as five cents a pound where adequate quantities of fertilizer were used, while Government figures show the cost per pound of lint to average about 16 cents and the average yield per acre to be about 155 pounds.

"Only by farming on a new plane of efficiency is it possible to safeguard the future of the Southern cotton grower," said Mr. Bowker. "Several things seem to be indicated: (1) A determined effort to reduce costs by more efficient operation, including heavier fertilizer application; (2) an equally determined and sustained effort to improve the quality of cotton."

In describing American fertilizer consumption as "astoundingly low," Mr. Bowker said that on the basis of consumption in Great Britain the American consumption should run to 10,000,000 tons; on the French basis, to 25,000,000 tons; on the basis of German per-acre plant food application, the United States would use 63,500,000 tons, and on the Holland basis the American consumption would be 125,000,000 tons.

Forest Advisory Council Meeting

Alexandria, La.—Reforestation operations in the vicinity of Urania, La., formed the subject of the principal discussion before the meeting of the Southern Forest Research advisory council. One of the points brought out by Director Demmon of the Southern forest experiment laboratory was that a great need of foresters is a thorough study of how to eliminate underbrush so that it will not interfere with young trees. A field trip through the 100,000 acres of the Urania Lumber Co., of which Henry E. Hardner is president, gave members of the council and many visitors the opportunity to observe the reforestation experiments and operations of that company.

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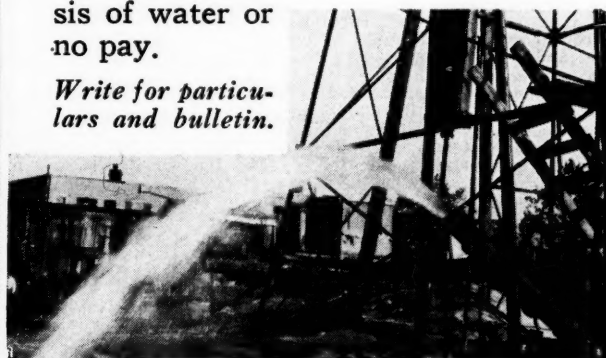
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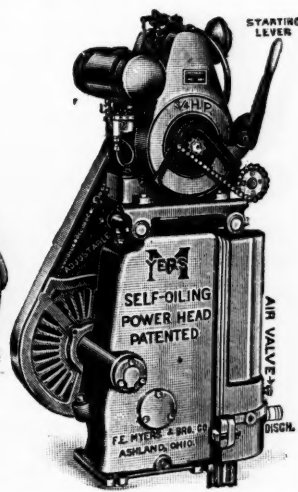
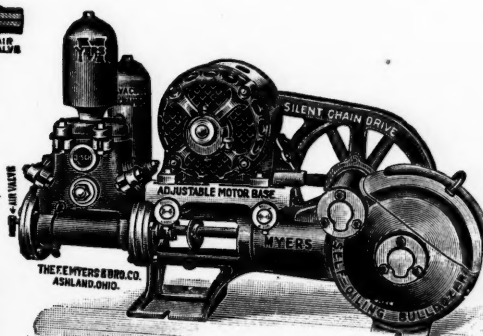
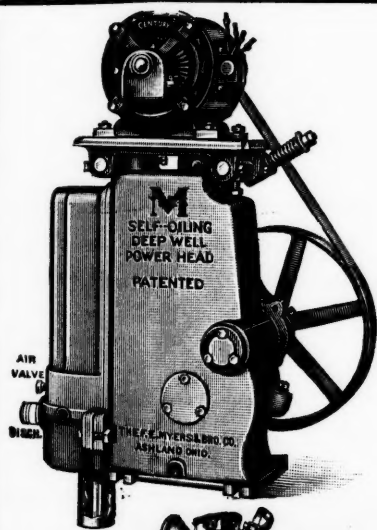
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FINANCIAL NEWS

Bond Issues Proposed

Fla., Avon Park—City recently voted \$95,000 6% refunding bonds. 10-9

Fla., Dover—Hillsborough County School Bd., Tampa, called election for Dec. 16 in Dover School Dist. on \$45,000 school building bonds. 11-20

Ky., Hopkinsville—Christian County, V. E. Barnes, County Treas., opens bids Dec. 2 on \$65,000 4½% \$1000 denom. road bonds. 11-20

Ky., Lexington—City, James J. O'Brien, Mayor, defeated \$350,000 bonds for building auditorium. (Recently incorrectly noted bonds voted.) 11-20

La., Jackson—City, J. M. Johnson, Mayor, and Bd. of Trustees, called election for Dec. 9 to vote on \$20,000, 6% water works bonds. 10-9

La., New Orleans—Orleans Parish Levee Bd., A. L. Shushan, Pres., voted to sell \$2,000,000 bonds for improving and extending levees and for building new levees. 10-23

La., Plaquemine—Iberville Parish School Bd., postponed election on \$175,000, 6% School Dist. No. 2 bonds until Jan. 12. 10-23

Md., Baltimore—City, Augustus M. Denhard, City Register, opens bids Dec. 12 for \$4,134,000 4% coupon bonds. 11-20

Md., Frederick—Frederick County Commrs. may issue \$100,000 road bonds. 11-20

Miss., Greenwood—City Council will meet on Dec. 2 to issue \$10,000 school improvement bonds. 11-20

Miss., Meridian—Lauderdale County Supvrs. open bids Dec. 4 on \$300,000 road bonds; \$300,000 additional to be sold at later date. 11-20

Miss., Jackson—City plans \$300,000 school bond election. 11-20

Miss., Yazoo City—City opens bids Dec. 8 for \$34,000, not to exceed 6% bonds to provide funds to make refunds for street paving assessment. 11-20

N. C., Louisburg—Franklin County Commrs., S. C. Holden, Clk., opens bids Dec. 1 for \$22,000, not to exceed 6%, \$1000 denom. school building bonds. 11-20

Okla., Hominy—City plans voting on \$150,000 power plant bonds in near future. 11-20

Okla., Oklahoma City—City, M. Peshek, Jr., Clk., may vote in December on \$8,800,000 bonds, including: City hall, \$600,000; Walnut Ave. viaduct improvement, \$150,000; sanitary sewer through retail dist., \$275,000; Western Ave. viaduct, \$500,000; incinerators, \$240,000; water main extensions, \$400,000; erecting 4 water tanks, \$400,000; filter plant extensions, \$100,000; clarifier, \$55,000; clear well, \$45,000; completion of sewage disposal plants, \$800,000; main storm sewers, \$1,250,000; main sanitary sewers, \$400,000; Central Ave. viaduct, \$625,000; widening Walker Ave., \$410,000; municipal auditorium, \$1,000,000; fair park improvements, \$420,000; downtown comfort stations, \$30,000; new detention hospital, \$75,000; park improvement and purchase of additional playgrounds, \$550,000; new fire stations and fire department equipment, \$500,000; municipal garage and fire station, \$200,000; police signal system, \$50,000. 11-20

Okla., Oklahoma City—Oklahoma County Commrs. passed resolution calling \$950,000 courthouse bond election. 11-20

S. C., Columbia—State of South Carolina, J. H. Scarborough, State Treas., receives bids Dec. 8 for \$10,000,000 state highway certificates of indebtedness. 11-20

S. C., Spartanburg—Spartanburg Metropolitan Dist., Thos. H. Daniel, Chmn., opens bids Dec. 1 for \$500,000, not to exceed 5% sewer bonds. 11-20

Tenn., Kingsport—City, G. D. Black, Treas., rejected bids for \$50,000, 6%, \$1000 denom. public improvement bonds; will be reoffered on Dec. 2. 10-16

Tex., Abilene—Taylor County, Tom K. Eplen, County Judge, opens bids Dec. 1 for \$100,000, 4½ or 4¾%, \$1000 denom. jail bonds. 11-20

Tex., Angleton—Brazoria County Consolidated Road Dist. No. 1 votes Dec. 20 on \$3,264,000 road bonds, \$1,014,000 for retiring district road bonds and \$2,250,000 for further construction. 11-6

Tex., Brownsville—Cameron County Water Control Dist. No. 18, J. Lloyd Parker, Pres., Olmito, voted \$482,000 improvement bonds. 11-13

Tex., Fort Worth—City Council plans issuing \$500,000 filter plant bonds. 11-20

Tex., Kerrville—Kerr County voted \$450,000 paving bonds. 10-23

Tex., San Antonio—San Antonio Independent School Dist., Dr. J. A. McIntosh, Pres., Bd. of Education, called election for Dec. 18 on \$1,750,000 bonds for improving schools. 11-20

Tex., San Angelo—City, E. E. Laurie, City Mgr., votes Dec. 30 on \$75,000 refunding and airport bonds. 10-30

Tex., Santa Maria—Santa Maria Water Control & Improvement Dist., T. D. Shipley, Asst. Sec., soon sell \$50,000 water bonds. (Recently incorrectly noted under Edinburg.) 11-13

Tex., Sudan—City defeated \$35,000 sanitary sewer bonds. 10-9

Tex., Texarkana—City Council called election for Dec. 18 on \$120,000 bonds for purchasing additional ground for post office and Federal court building. 10-9

Va., Danville—City may vote on \$150,000 bonds for memorial armory. 10-9

Va., Newport News—City plans voting soon on \$385,000 bonds: \$150,000, Salters Creek sewage disposal bonds; \$70,000, streets and sewers; \$35,000, prison barrack and city farm; \$50,000, parks and playgrounds; \$30,000, fire station, and \$50,000, airport. 2-27

Va., Richmond—State, J. G. Pollard, Governor, may hold special session of Legislature to authorize issuance of \$5,000,000 to \$7,000,000 road certificates of indebtedness. 10-9

Va., Richmond—City, Committee on Finance of Council, W. C. Carpenter, Chmn., opens bids Dec. 5 for \$500,000, 4½, \$1000 denom. gas works refunding bonds. 10-9

Va., Roanoke—City votes Jan. 20 on \$750,000 \$1000 denom. 4½% bonds: Street improvements, \$450,000; sewers and drains, \$300,000. 10-9

W. Va., Charleston—State, Wm. G. Conley, Governor, reported, plans offering \$5,000,000 road bonds about Jan. 1 and \$5,000,000 about Mar. 1. 10-9

W. Va., Williamson—City votes within 60 days on \$20,000 water works bonds. 10-9

Bond Issues Sold

Ala., Montgomery—City, J. L. Cobbs, Treas., sold \$110,000, 5½% Series AV street improvement bonds to Marx & Co., Birmingham, at 100.50. 9-13

Ga., Blackshear—City sold \$17,000 5% coupon street improvement bonds to Citizens & Southern Co., Atlanta, at 101.01. 10-9

Ky., Campbellsville—City sold \$4000 6% \$100 denom. bonds to P. B. Neal, Irvine. 10-9

Kv., Covington—City sold \$430,000 4¾% bonds to Magnus & Co., Cincinnati, O. 10-9

La., Bastrop—City Council sold \$30,000 excess revenue bonds for improving streets to Citizens State Bank & Trust Co. and Bastrop State Bank and Trust Co., both Bastrop, at 100.003. 10-30

La., Many—Sabine Parish School Bd. sold \$25,000 Zwolle Dist. No. 61 bonds to L. M. Vass & Co., Inc., New Orleans. 10-30

Mo., Clayton, St. Louis—City sold \$72,000, 4½% city hall bonds to Mississippi Valley Trust Co., St. Louis, at \$72,374.40. 10-30

(Continued on page 71)

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ages estates and personal and corporate trusts. COMPRISING among its modern Facilities every Branch of Trust Service to Corporations and Firms, Institutions and Individuals, *for any form of trust*, the Bank of New York & Trust Company offers in addition its long Experience and assurance that the same exceptional Equipment will be available for many years to come.

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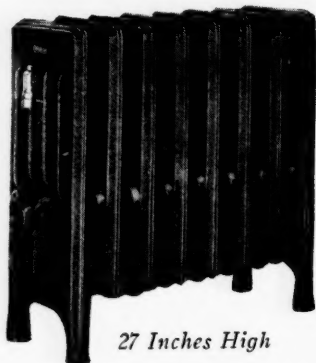
Uptown Office:

Madison Avenue at 63rd Street



NEW YORK
CLEARING HOUSE
MEMBERSHIP
NUMBER ONE

WILLIAMS GAS STEAM RADIATORS



27 Inches High

IMMEDIATE HEAT. (no waiting)

AUTOMATIC LIGHTER. (no matches)

No Boiler or Basement—No steam or water pipes. Each radiator independent—Automatic Regulation. A size for every requirement—Made of Cast Iron. The only connection is a gas pipe—for *new or old* buildings.

Agents wanted—An excellent opportunity for capable men.

Manufactured by

WILLIAMS RADIATOR COMPANY

1865-1873 Cordova St.

Los Angeles, Calif.

AGENCIES IN THE SOUTH

We solicit at this time inquiry from high grade concerns located in the Southern States who could act as agents for the sale of our line of Deep Well Pumping Equipment to include:

1. Deep Well Double Stroke Piston Pumps
2. Deep Well Single Stroke Piston Pumps
3. Deep Well Screw Type Turbine Pumps
4. Deep Well Bowl Type Turbine Pumps

Due to the shortage of water existing almost nationally and the natural plans for development of water systems and improvements, we have never had so many inquiries for our line of equipment as we have experienced during the past six months. We protect our established agents on these direct inquiries.

We invite inquiries from concerns and individual equipped to handle our line.

LUITWIELER PUMPING ENGINE COMPANY

Rochester, N. Y., U. S. A.

FINANCIAL NEWS

(Continued from page 68)

Mo., Webster Groves, St. Louis—City sold \$30,000, 4½% bonds for paving Selma Ave. to Stix & Co., St. Louis, at \$30,717.80. 11-6

N. C., Lumberton—Robeson County Com. Mrs., Eva W. Floyd, Clk., sold \$30,000, not to exceed 6%, \$10,000 denom. school building bonds to National Bank of Lumberton at 100.01. 10-30

Okla., Kingfisher—City, Mary Crosthwait, City Clk., sold \$25,000 sewage disposal plant bonds to Brown-Crummer Co., Wichita, Kan. 11-13

S. C., Greenville—Greenville County, W. H. Willmon, Comptroller, sold \$131,000, 4½%, \$1000 denom. highway bonds to Darby & Co., New York, at \$131,040 and accrued interest. 11-6

Tex., Shallowater—Shallowater School Dist. sold \$55,000 school building bonds to State of Texas, Austin. 11-13

Va., Bristol—City sold \$75,000 coupon street and sewer improvement bonds to Bank of Bristol, at 100.33.

New Financial Corporations

Mo., St. Louis—Empire Bond & Mortgage Corp., chartered; R. J. Wuest, 10 S. Lyle St.

N. C., Hendersonville—State Trust Co., capital \$100,000, formed with R. C. Clark, Pres., Druid Hills; Capt. Ellison A. Smith, V.-Pres.

Va., Gate City—National Bank in Gate City, capital \$50,000, chartered; D. C. Sloan, Pres.; H. P. Boatright, Cashier.

Commerce Union Bank, Edw. Potter, Jr., Pres., acquired Tennessee-Hermitage National Bank, E. A. Lindsey, Pres., both Nashville, Tenn.

Committee headed by Chancery Judge Har-

vey R. Lucas, and including E. W. Freeman, Abe Barre, M. S. Pogue and W. T. Armstrong, named to select second committee to work out details for organizing new bank to acquire assets of National Bank of Arkansas, Pine Bluff.

Commonwealth Discount Corp. acquired Industrial Bank of Richmond, T. W. Ellett, Pres., Richmond, Va., as first of group to be acquired.

East Tennessee Savings Bank, S. V. Carter, Pres.; East Tennessee National Bank, S. V. Carter, Pres., and City National Bank, Cowan Rogers, Pres., all Knoxville, Tenn., merged; S. V. Carter to be president of new institution.

Elgan C. Robertson, J. Daggett, C. E. Daggett and Griffin Smith acquired control of Lee County National Bank, J. B. Daggett, Pres., Marianna, Ark.

First National Bank, L. Rubel, Pres., Mechanics Trust & Savings Bank, W. J. Pierce, Cashier, and City National Bank, Jas. C. Utterback, Pres., all Paducah, Ky., merged.

Florence Building & Loan Association, Florence, Ky., increasing capital, \$100,000 to \$300,000.

Morris Plan Co., H. A. Miller, Pres., acquired Asheville Industrial Bank, D. C. Waddell, Jr., Pres., and Biltmore Industrial Bank, all Asheville; H. A. Miller to be president of merged institution.

Gas Sales Gain

The Appalachian Gas Corporation reports sales of natural gas of subsidiary companies and affiliates, exclusive of those not operating in 1929, amounting to 13,241,827,000 cubic feet for the nine-

month period ended September 30, a gain of 1,944,748,000 cubic feet over the corresponding period of last year. Indications are that the October report will show even larger gains.

Virginia Schools to Expend

\$24,000,000

Richmond, Va.—A total of \$24,000,000 is to be expended during the ensuing year for educational purposes in Virginia, according to Harris Hart, State superintendent of schools.

Metropolitan Life Insurance Sales

More than 9000 additional policies were taken out with the New York Life Insurance Company during the first ten months of this year than in the corresponding period of 1929, President Darwin P. Kingsley reports. While the volume of new paid business for the first ten months, \$792,000,000, exceeds the total for the same period in any previous year except 1929, the decrease in volume for the current year as compared with 1929 amounts to less than three per cent.



PROPOSALS

BOND ISSUES

BUILDINGS

PAVING

GOOD ROADS



Bids close December 23, 1930.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., November 15, 1930.—SEALED BIDS will be opened in this office at 3 p. m., December 23, 1930, for the extension and remodeling (except elevators) of the U. S. post office and court house at Oklahoma City, Okla. Drawings and specifications, not exceeding six sets, may be obtained at this office, in the discretion of the supervising architect, by any satisfactory general contractor, and provided a deposit of \$50.00 is made for each set to assure its prompt return. Checks offered as deposits must be made payable to the order of the Treasurer of the United States. JAS. A. WETMORE, Acting Supervising Architect.

Bids close December 9, 1930.

Bids on Bonds Solicited

Wise, Va.

At the Courthouse thereof on the 9th day of December, 1930. The Board of Supervisors will refund 400 one thousand dollar 1911, Wise County Road Bonds, bearing 5% interest. These bonds will be issued at 4½%, and will be serial bonds, will be dated February 1, 1931, payable as follows: \$10,000 each year beginning Feb. 1, 1934, until Feb. 1, 1937; and \$15,000 each year beginning Feb. 1st, 1938, until Feb. 1, 1957; and \$20,000 each year thereafter until paid, or some other form of serial maturities. Bids will be by auction. Interest will be paid semi-annually. Those bonds will be refunded under section No. 2735 of the Code of Virginia. This Board reserves the right to reject any and all bids.

BOARD OF SUPERVISORS, WISE COUNTY, VA.
By J. W. Stewart, Chairman.

GENERAL INFORMATION

About Proposal Advertising
in Manufacturers Record

PUBLICATION DAY: Thursday.
FORMS CLOSE: 10 A. M. Tuesday.

When too late to send copy by regular mail to reach us by 10 A. M. Tuesday, forward by night letter or air mail when possible.

THE DAILY CONSTRUCTION BULLETIN OF THE MANUFACTURERS RECORD

Published every business day, gives information about the industrial, commercial and financial activities of the South and Southwest.

The Daily Construction Bulletin can be used to advantage when copy cannot reach us in time for publication in the Manufacturers Record before bids are to be opened or when daily insertions are necessary to meet legal requirements.

The rate is the same for both publications—35 cents a line each insertion.

Bids close December 10, 1930.

War Department, Office Constructing Quartermaster, Fort Bragg, N. C. Sealed proposals in triplicate will be received until 10.00 A. M., December 10, 1930, and then publicly opened, for the construction and completion of Nurses' Quarters, at Fort Bragg, North Carolina. \$15.00 deposit certified check payable to Treasurer of United States required for plans and specifications. A certified check or Bid Bond in the amount of \$6,000.00 will be required with each proposal. Further information on request.

Bids close December 2, 1930.

Bridge Work

STATE OF MARYLAND
STATE ROADS COMMISSION

NOTICE TO CONTRACTORS

Baltimore, Md.

SEALED PROPOSALS for building bridge extensions as follows:

Montgomery County, Contract No. M-162-511—Extensions to the triple span concrete girder bridge over Great Seneca Creek on the road from Gaithersburg to Frederick, about 2½ miles N. of Gaithersburg

will be received by the State Roads Commission at its offices, Federal Reserve Bank Building, Calvert and Lexington Sts., Baltimore, Maryland, until 12 M. on the 2nd day of December 1930, at which time and place they will be publicly opened and read.

Bids must be made upon the blank proposal form which, with specifications and plans will be furnished by the Commission upon application and cash payment of \$1.00, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check for the sum of Five Hundred (\$500) Dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond, and comply with the Acts of the General Assembly of Maryland, respecting contracts.

The Commission reserves the right to reject any and all bids.

BY ORDER of the State Roads Commission this 18th day of November 1930.

G. CLINTON UHL, Chairman.

L. H. STEUART, Secretary.

Bids close December 3, 1930.

U. S. ENGINEER OFFICE, First New Orleans District, New Orleans, La. SEALED BIDS, in duplicate, will be received until 2 P. M., December 3, 1930, and then publicly opened, for furnishing all labor and materials and performing all work for the construction of a railway swing bridge across the site of the Louisiana-Texas Intracoastal Waterway on the Bayou Sale branch of the Texas and New Orleans Railroad Company near North Bend, La. Further information furnished on application.

Bids close December 8, 1930.

**Notice of Sale
\$10,000,000
State Highway Certificates
of Indebtedness
of the
State of South Carolina**

Columbia, S. C.
Sealed proposals will be received by the Governor and the State Treasurer of the State of South Carolina at the State Capitol, in the City of Columbia, South Carolina, until Monday, December 8, 1930, at 12 o'clock, Noon, for the purchase of \$10,000,000.00 State Highway Certificates of Indebtedness of the State of South Carolina. The certificates of indebtedness will be dated December 1, 1930, will bear interest at a rate to be named by the bidder, payable semi-annually on June 1st and December 1st, and will mature in annual series or installments on December 1st in each year as follows: \$300,000 in 1939; \$450,000 in each of the years 1940 to 1942, inclusive; \$600,000 in each of the years 1943 and 1944; \$750,000 in each of the years 1945 to 1951, inclusive, and \$950,000 in each of the years 1952 and 1953.

The certificates of indebtedness will be of the denomination of \$1000 each, and will be issued in coupon form, with the privilege of registration as to principal only or as to both principal and interest. Principal and interest will be payable in gold coin at the State Treasury, in the City of Columbia, or at the agencies of the State in the Cities of Charleston and New York.

Bidders are invited to name the rate of interest which the certificates are to bear. The rate must be a multiple of one-quarter of one per centum, and must be the same for all of the certificates. The certificates will be awarded to the bidder offering to take them at the lowest rate of interest at a price not less than par and accrued interest to the date of delivery of the certificates. As between bidders naming the same rate of interest, the amount of premium will determine the award.

Each bid should be enclosed in a sealed envelope, marked "Proposal for State Highway Certificates of Indebtedness" and addressed to the undersigned, and must be accompanied by a certified check upon an incorporated bank or trust company for \$200,000, payable to the State Treasurer, as security for the performance of such bid.

Purchasers will be furnished with the opinion of Messrs. Reed, Hoyt and Washburn, Attorneys, of 49 Wall Street, New York, that the certificates of indebtedness are valid obligations of the State of South Carolina, said opinion to be paid for by the purchasers.

The blank bonds will be furnished by the State.

The right is reserved to reject all bids and to readvertise the certificates of indebtedness for sale.

Dated November 22, 1930.

JOHN G. RICHARDS,
Governor.
J. H. SCARBOROUGH,
State Treasurer.

Bids close December 17, 1930.

Notice for Proposals on Utilities

Kings Mountain, N. C.
Sealed proposals will be received by the City of Kings Mountain, North Carolina, at Eleven (11:00) o'clock A. M. on December 17th, 1930, at the office of the City Clerk for the purchase of Electric and Water Systems now owned and operated by that city.

Should an acceptable proposal be received, this will be submitted to the voters for ratification.

A certified check in an amount of not less than Five Thousand (\$5,000.00) Dollars is required, and the right is reserved to reject any or all proposals.

HON. WILEY H. MCGINNIS, Mayor.
Further information may be obtained from the undersigned:

UTILITIES ENGINEERING & MANAGEMENT COMPANY,
917 Johnston Bldg.,
Charlotte, N. C.

Bids close December 9, 1930.

Virginia Highway Work

Richmond, Va.

Tuesday, 10 A. M., office of the Va. Dept. of Highways, Richmond, Va. Rt. 15, Proj. 111, County Wythe, 1.3 Mi. Mac. Cu. Yds. Excava. 30,098, Sq. Yds. Mac. 11,933. Rt. 520, Proj. 689, County Accomac, 5.7 Mi. Gr. and Dr., Cu. Yds. Excava. 33,768. Details obtainable upon request

Bids close December 16, 1930.

Gas Plant and Franchise

Fredericksburg, Va.

An offer has recently been submitted to the Common Council of this city for the sale of the municipal gas plant and a gas franchise, and in considering said offer the Council has decided the best interests of the city warrant submitting the proposition to a bid open to all interested parties.

By order of the Council, sealed bids will be received at the office of L. J. Houston, Jr., City Manager, Fredericksburg, Va., until 2 P. M. Tuesday, December 16th, 1930, at which time and place they will be publicly opened and read, for the sale of the municipal gas plant and a gas franchise for a period not to exceed 30 years. Bids must state cash offer for plant and franchise, and the new rate or rates for gas the bidder will establish.

A certified check or bidder's bond amounting to 3% of bid must accompany a bid, which check or bond, except that of the successful bidder, will be promptly returned and that of the successful bidder will be applied as a credit upon signing of contract, but will be forfeited to the city should said bidder fail or refuse to sign the contract.

The right is reserved to reject any or all bids, or to accept any bid which the Council deems to be to the best interests of the city.

By order of Special Committee.

JOHN F. GOULDMAN, JR.,
Chairman.
L. J. HOUSTON, JR.,
City Manager.

Bids close December 16, 1930.

Water Works and Sewer Improvements

SPARTANBURG METROPOLITAN SUB-DISTRICT "B"

SPARTANBURG COUNTY, S. C.

Spartanburg, S. C.

Sealed proposals for the construction of water works and sewer systems for The Spartanburg Metropolitan Sub-District "B," near Spartanburg, S. C., will be received by the Committee for Spartanburg Metropolitan Sub-District "B" at the office of the Spartanburg Metropolitan Commission in Spartanburg, S. C., at or before ten (10) o'clock A. M. December 16th, 1930.

The work will consist of the construction of approximately 6.3 miles of 8-inch and 10-inch sewer mains, 103 manholes, 6 flush tanks, 1.6 miles of 6-inch and 8-inch cast-iron water mains, 3 miles of galvanized iron pipe lines, 17 hydrants and all appurtenances.

Each proposal must be accompanied by a cashier's check for \$3000.00, payable to the Committee for Spartanburg Metropolitan Sub-District "B," as a bidder's guarantee. A bidder's bond will not be accepted. A surety bond will be required of the successful bidder.

Plans and specifications may be seen at the office of the Spartanburg Metropolitan Commission or at the office of the Engineers, 208 Montgomery Building, Spartanburg, S. C. Plans and specifications will be furnished on application to the Engineers, accompanied by a deposit of \$10.00. Seven dollars of this amount will be returned to those making bona fide bids and returning plans within two weeks from date of letting.

The Committee for Spartanburg Metropolitan Sub-District "B" reserves the right to reject any and all bids or any part of a bid, and to award to a bidder any part of the work as seems best for the interest of the Spartanburg Metropolitan Sub-District "B."

South Carolina law requires that all contractors bidding on work in this state in excess of \$10,000.00 procure a bidder's license.

THE HARWOOD BEEBE COMPANY,
Engineers.

Spartanburg, S. C.

U. M. KILGO, Chairman;
J. E. BROCK,
S. C. BAXTER,
The Committee for Spartanburg Metropolitan Sub-District "B."

Bids close December 9, 1930.

Sewers and Paving

Mobile, Ala.

Sealed bids will be received by the Board of Commissioners, City of Mobile, Alabama, until noon Tuesday, December 9, 1930, for the following:

STORM SEWERS

6-inch Pipe	3790 Feet
10-inch Pipe	1845 "
12-inch Pipe	2480 "
15-inch Pipe	725 "
18-inch Pipe	1390 "
21-inch Pipe	1455 "
24-inch Pipe	1296 "
Manholes	34
Inlets	79
Special Basins	25

PAVING

GROUP 1:

1½ in. Sheet Asphalt Wearing Surface	5,570 Sq. Yds.
1½ in. Alabama Rock Asphalt Wearing Surface	5,570 Sq. Yds.
Tons of Black Base	500 Tons
Relining Granite Curbing	300 Lin. Ft.

(The above Sheet Asphalt and Alabama Rock Asphalt are in competition.)

GROUP 2:

1½ in. Sheet Asphalt Wearing Surface	7,860 Sq. Yds.
1½ in. Alabama Rock Asphalt Wearing Surface	7,860 Sq. Yds.
2 in. Warrenite Bitulithic Wearing Surface	7,860 Sq. Yds.
Tons of Black Base on Sheet Asphalt and Alabama Rock Asphalt	786 Tons
Tons of Black Base on Warrenite Bitulithic	590 Tons
Extra 4 in. Concrete Base	1,700 Sq. Yds.

(The above Sheet Asphalt, Alabama Rock Asphalt and Warrenite Bitulithic are in competition.)

GROUP 3:

1½ in. Sheet Asphalt Wearing Surface	38,693 Sq. Yds.
1½ in. Alabama Rock Asphalt Wearing Surface	38,693 Sq. Yds.
2 in. Warrenite Bitulithic Wearing Surface	38,693 Sq. Yds.
Tons Black Base on Sheet Asphalt and Alabama Rock Asphalt	5,807 Tons
Tons Black Base on Warrenite Bitulithic	4,830 Tons
Concrete Curbing—5"x18"	24,612 Lin. Ft.
Concrete Gutters—4"x15"	2,865 Sq. Yds.
Extra 4 in. Concrete Base	1,410 Sq. Yds.

GROUP 3:

2½ in. Brick Surface	41,553 Sq. Yds.
Concrete Curbing, 5"x18"	24,612 Lin. Ft.
Concrete Base, 4"	3,002 Sq. Yds.
Black Base	1,044 Tons
Extra 4" Concrete	1,410 Sq. Yds.

(On Group 3 Sheet Asphalt, Alabama Rock Asphalt, Warrenite Bitulithic and Vitriified Brick Will be in competition.)

GROUP 4:

1½ in. Sheet Asphalt Wearing Surface	83,350 Sq. Yds.
1½ in. Alabama Rock Asphalt Wearing Surface	83,350 Sq. Yds.
2 in. Warrenite Bitulithic Wearing Surface	83,350 Sq. Yds.
Tons of Black Base on Sheet Asphalt and Alabama Rock Asphalt	12,616 Tons
Tons of Black Base on Warrenite Bitulithic	10,513 Tons
4 in. Concrete Base	201 Sq. Yds.
Concrete Curbing, 5"x18"	15,341 Lin. Ft.
Relining Granite Curbing	4,814 Lin. Ft.
Concrete Gutters, 4"x15"	7,383 Sq. Yds.
Extra 4 in. Concrete Base	5,040 Sq. Yds.

(The above Sheet Asphalt, Alabama Rock Asphalt and Warrenite Bitulithic are in competition.)

GROUP 5:

6 in. One Course Concrete	18,633 Sq. Yds.
Concrete Curbing, 5"x18"	100 Lin. Ft.

GROUP 5—AMIESITE ASPHALT

PAVING:

5½ in. Amiesite Paving	17,073 Sq. Yds.
Concrete Gutters, 6"x15"	1,560 Sq. Yds.
Concrete Curbing, 5"x18"	100 Lin. Ft.

(One Course Concrete Paving and Amiesite Asphalt Paving are in competition.)

GROUP 6:

6 in. One Course Concrete	23,777 Sq. Yds.
Concrete "Curbing, 5"x18"	14,476 Lin. Ft.
Excavation	3,028 Cu. Yds.

Plans, Profiles and Specifications are on file in the office of the CITY ENGINEER and can be seen on application.

The right is reserved to reject any or all bids.

LEON SCHWARZ, Mayor.
WRIGHT SMITH,
City Engineer.

S. H. HENDRIX,
City Clerk.

CLASSIFIED OPPORTUNITIES

MINERAL AND TIMBER LANDS, WATER POWER, MISCELLANEOUS PROPERTIES

TO LEASE—240 A. in Southeastern Okla. for mineral development. Large adjacent tract available, with price, location and combination of natural agencies that merit investigation. Facts given on request.
F. D. McCALL, Frisco City, Ala.

MANGANESE DEPOSITS

FOR SALE ONLY—Rich manganese deposits in Ala. near Birmingham.
THE MIDVALE MINING & DEVELOPMENT CO.,
W. H. Amerine, Secretary
Box 1121, Montgomery, Alabama.

TIMBER AND TIMBER LANDS

FOR SALE—5 million feet saw timber, poplar, oak, gum, pine. None over 1½ miles from railroad station. T. W. McAllister, Buena Vista, Ga.

ACREAGE BARGAINS—We have several desirable tracts; some are well stocked with fast growing pine timber. Many have enough advance growth to pay a good return on the investment above carrying charges during the holding period. Let us select the tract and manage it, taking our remuneration as a percentage of net earnings.
THE JAMES D. LACEY COMPANY,
1409 Barnett Bldg., Jacksonville, Fla.

PINE SEEDS

1930 CROP, WELL CLEANED, highest germination, Longleaf Pine seed, \$3.00 per pound. Slash Pine seed \$5.00 per pound. Loblolly Pine seed \$6.00 per pound. Shortleaf Pine seed \$7.50 per pound. Also seedlings reasonably. Full reforestation information on application. Write for catalog.
F. M. ELLIS, Griffin, Ga.

FARM, FRUIT AND TRUCK LANDS

FLORIDA

FOR SALE—20 acres with 50 bearing fruit trees, 8-room residence, furnished; 800 foot fronting on river, 200 foot seawall, opposite side of river from Fort Myers. River is about 2 miles wide and about 18 miles from Gulf. About 4 miles from bridge; beautiful shrubs and flowers. A splendid buy.
P. JOHN HART REALTY CORP.,
P. O. Arcade,
Fort Myers, Fla.

KENTUCKY

FOR SALE—Farm of 538 acres; 18 miles from Bowling Green, Ky., 35 miles from Mammoth Cave, just 1½ miles off main highway, 300 acres good bottom land, will grow anything grown in Ky. Has 3 houses, 2 good barns, silo, 2 springs, 2 wells and also creeks. 50 or 60 acres good timber. Will sell for \$35.00 per acre, will take payment of \$5,000 down and give 10-year terms on balance payment. Address or call on me in person at my store. S. B. GILLIAM, Bowling Green, Ky

LOUISIANA

80 ACRE FARM for sale or trade, located three miles from Clarksdale, Miss., on Federal Highway. Ideal for dairy, poultry or cotton. Good buildings and other improvements. Good neighborhood.
A. J. HANSON, Opelousas, La.

TEXAS

LOWER RIO GRANDE Valley orchards and acreage at actual value. Owner's price direct to you. Send for list. **ROBERTS REALTY CO.,** Realtors, McAllen, Tex.

WONDERFUL 885 ACRE FARM, well located, every modern improvement, no finer land anywhere. Price \$90 per acre, which is a sacrifice. T. H. Barrow and Sons, Austin, Texas.

Rates, Terms and Conditions

RATES: 30 cents a line each insertion. Minimum space accepted, four lines. In estimating the cost allow six or seven words of ordinary length to line. When the advertisement contains a number of long words proper allowance should be made.

Rates for Special Contract:

100 lines 28c a line
300 lines 26c a line
500 lines or more 25c a line

TERMS: For transient advertising cash with order; check, postoffice or express money order or stamps accepted.

On special contract advertising bills are rendered monthly, covering space used each month, payable within ten days.

CONDITIONS: No patent medicine, oil or mining stock advertisements or questionable or undesirable advertisements will be accepted. The assistance of our readers in excluding undesirable advertisements is requested. No display type used.

FARM, FRUIT AND TRUCK LANDS

TEXAS

PRESIDIO COUNTY, TEXAS RANCH, on Santa Fe extension to Mexico. Oil and Mineral possibilities. Near silver mine.
C. H. C. Anderson, Linz Bldg., Dallas, Tex.

HUNTING PRESERVE

IDEAL VIRGINIA HUNTING PRESERVE AND FARM—1450 Acres.

700 acres woodland, balance farming land, pasture and meadows, watered by large creek and small streams. Attractive modern nine-room residence, three baths, steam heat and water system. Manager's house, several tenant settlements and stock barns.

Abundance of game, such as wild turkeys, quail, rabbits, squirrels and fur-bearing animals; some deer.

Located thirty miles from Lynchburg, seven miles from small town. Photographs, price and full details on request. Non-resident owner, anxious to sell.

GEO. V. VENABLE & CO.,
Lynchburg, Virginia.

BUSINESS OPPORTUNITIES

FOR SALE, REASONABLE—Telephone business in good section of North Carolina on paved highway. If interested address No. 9064, care Manufacturers Record.

CONTRACTING FIRM with good reputation in State Highway Work desires working partner with at least two hundred thousand dollars cash in order that business may be enlarged. Address P. O. Box 493, Leominster, Mass.

MANUFACTURERS—Write for our FREE Classification Sheets of inventions for sale, covering 135 main subjects, and in one or more of which you will doubtless be interested. **ADAM FISHER MFG. CO.,** 578 Enright, St. Louis, Mo.

FOR SALE—Developed mountain park; 1600 acres, large lodge, 15 splendid cottages, home lighting plant, excellent swimming pool; on concrete highway 25 miles from Greenville, S. C.; 35 miles from Asheville, N. C. Suitable for boys or girls summer camp, sanitarium or employees outing camp. Price very reasonable. John L. Williams, Box 1612, Greenville, S. C.

BUSINESS OPPORTUNITIES

LONG TERM LOANS, large amounts, made on industrial, mercantile, sawmill properties. **THOS. W. GILMER**, Attorney, Bay Minette, Alabama.

FOR SALE—The Southern Coal Company of Asheville, North Carolina, established for 22 years, is for sale. Large and perfectly equipped yard doing business of 20,000 tons annually, and lucrative fuel oil business. Private bids received. Communicate with **J. G. DESHLER**, Receiver,
10 N. Pack Square, Asheville, N. C.

A SURETY BOND, Bonded Trustee holding trust funds, will protect Profit Participating 8% preferred shares, of a patented machine manufacturing Co., so 75% can be withdrawn on 30 days' notice. The investments will be enterprise starting, with unusual employment and profit possibilities; Government records confirm practicability of invention for commercializing. For further protection facts, etc., address No. 9061, care Manufacturers Record.

FINANCIAL

TEXAS—Investments offered in the great Southwest. Telephone, electric light, gas, water works, real estate, first mortgages. **BOX 1929, AMARILLO, TEXAS.**

A CONCERN that knows values and is well established wants to represent company that has money to loan. All loans to be secured by first mortgages in Oklahoma real estate. The best of bank reference furnished. Address **VICTOR MEAD COMPANY**, 319 N. Harvey St., Oklahoma City, Okla.

INDUSTRIAL SURVEYS

ENGINEERING REPORTS on resources of cities and towns. Recommendations for industrial development and zoning made by specialists in locating industries.

TECHNICAL SERVICE CO.,
Woolworth Building New York City

INDUSTRIES WANTED

WELL-LOCATED Southern town wants industry. Will furnish plant, moving expenses, additional capital and other concessions.

INDUSTRIAL SERVICE CORP.,
Asheville, N. C.

INDUSTRIAL PLANTS

FOR SALE—Sash, door and millwork plant, ready to operate, well located, resident skilled labor. Liberal terms. Address No. 9057, care of Manufacturers Record.

FOR SALE
SHEET METAL PLANT
fully equipped and operating. Sheets and angles available at mills here. Address
H. McDERMOTT,
P. O. Box 42, Birmingham, Ala.

FURNITURE PLANT FOR SALE—Located at Cambria, Va., on main line Norfolk and Western Railroad. Fully equipped for the manufacture of medium price bedroom furniture. Sprinklered and capable of three-quarter million production. Cheap native labor and ideal climate. Ready for immediate operation. **EASY TERMS.** Address **J. S. PICKETT**, High Point, N. C.

FOR SALE OR TRADE
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Good Buildings: Iron Clad, 60' x 100'; 50' x 60'; 32' x 70'; Concrete Floors. Wood Frame, 45' x 100'; 34' x 70'; Wood Floors. Brick, 30' x 150'; Wood Floors. All equipped with Sprinkler System; 30 miles from Atlanta on Seaboard Railway. Owner 636 Orme Circle, N. E., Atlanta, Ga., or Industrial Agent, S. A. L. RYAN CO., Portsmouth, Va.

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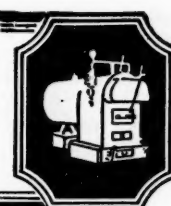


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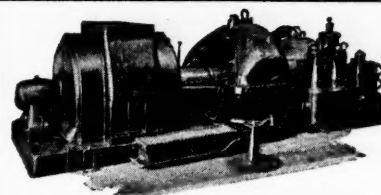
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Punches 1 1/16" dia. thru 5/8" material.
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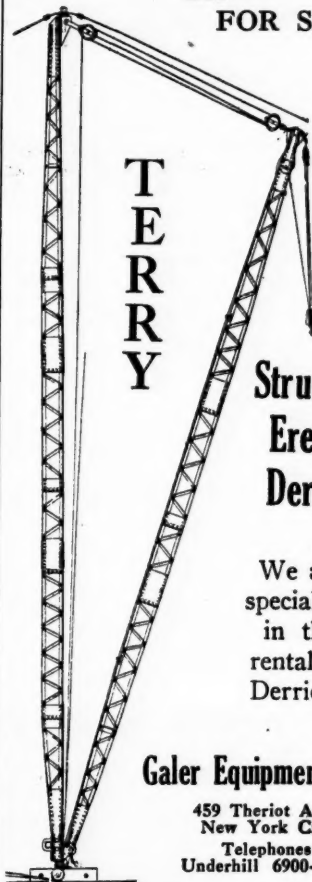
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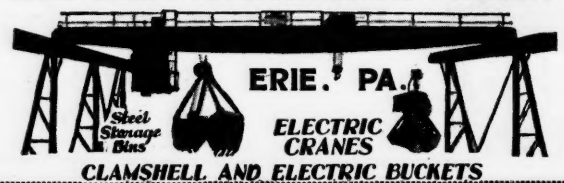
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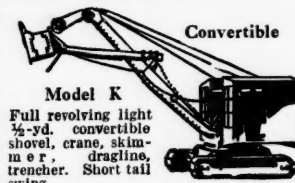
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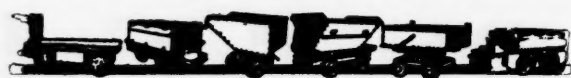
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INDUSTRIAL CAR EQUIPMENT



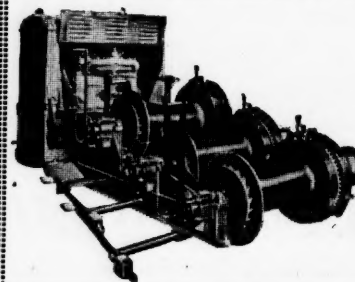
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KOPPEL
for all engineering and
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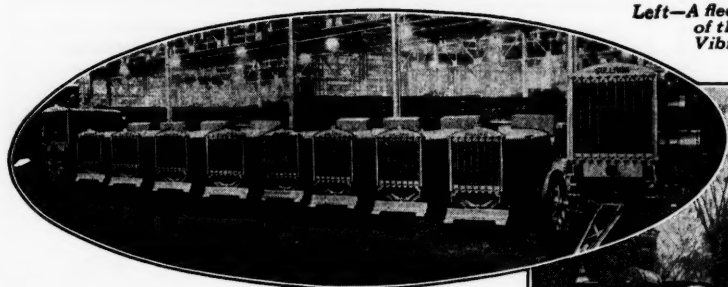
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CABLEWAYS**

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ESTABLISHED 1869

**J. S. Mundy
Hoisting Engine Co.**
Frelinghuysen Ave.
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Left—A fleet of Sullivan Vibrationless Compressors waiting delivery to one of the largest gas companies in the world. Below—A fleet of Sullivan Vibrationless Compressors owned by Washington, D. C.

Is there a difference in compressors?

Big Users of air answer with fleets of Sullivan Vibrationless Compressors

Every contractor knows that a compressor which stays on the job to the finish will earn him many extra dollars...by increasing the output of tools and men, and by reducing overhead.

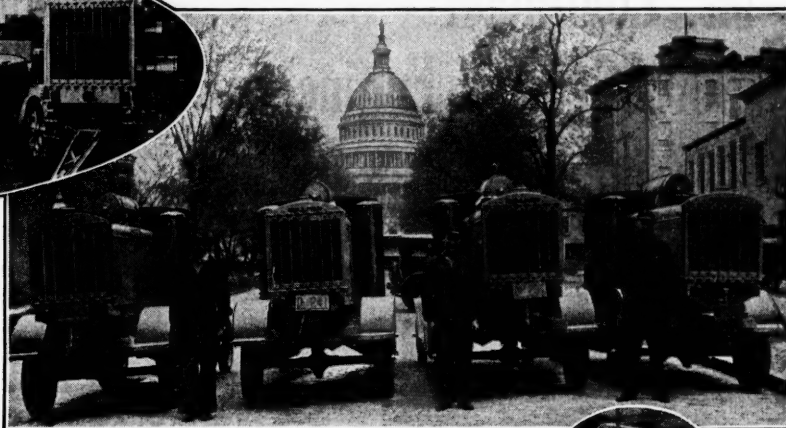
But multiply these dollars by...four!...five!...six!...ten! Double them again for the jobs which are carried on night and day!...and you have the reason why the buyers of compressor fleets are specifying *Vibrationless Compressors*. Catalog 83-R.

PRICES ON SULLIVAN GASOLINE-DRIVEN PORTABLE COMPRESSORS, ON STEEL WHEELS (Prices on skid, truck mounting and highway trailer trucks on request)

Prices include freight to nearest railroad depot	CAPACITY COMPRESSOR				
	66-ft.	110-ft.	160-ft.	220-ft.	310-ft.
PRICE, EAST OF MISSISSIPPI	1065.00	1670.00	2485.00	2840.00	3550.00
PRICE, WEST OF MISSISSIPPI	1095.00	1715.00	2560.00	2910.00	3645.00
ADD FOR RUBBER TIRES	80.00	80.00	125.00	125.00	175.00
ADD FOR SPRING MTG.	395.00	360.00	530.00	570.00	900.00
DEDUCT OMITTING RUNNING GEAR	25.00	60.00	80.00	80.00	80.00

If you have not seen the new 100-picture Vibrationless Compressor Book 83-R, send for it today

SULLIVAN
SULLIVAN MACHINERY COMPANY
718 Wrigley Bldg., Chicago



Right—A fleet of Sullivan Vibrationless Compressors on a tunnel job in Maine.

Right—A fleet of Sullivan Vibrationless Compressors owned by a large city in Wisconsin.

Right—A fleet of Sullivan Vibrationless Compressors on a rock job in New York.

Fifty Years Experience Built into McLanahan Washing Machinery

Steel logs, cylinder washers, combined washing and scrubbing screens, built for thoroughly washing materials economically.

For over 50 years these machines have been built and sold by us for washing hematite, manganese and gold ores, phosphate rock, limestone, sand, gravel, peat, etc.

Crushers—Ore Jigs—Dryers—Elevators—Conveyors—Screens—Holsts, etc. Pit, Mine, Quarry and Industrial Equipment.

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McLanahan and Stone Machine Company
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A bucket for every digging and rehandling need... A size for every job.
THE HAYWARD CO., 50-52 Church St., N. Y.



Greater Digging Power
Faster Operation
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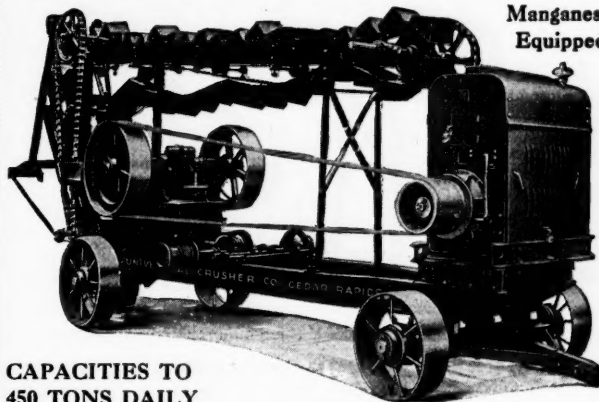
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"A Mouthful at Every
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Per Day

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450 TONS DAILY

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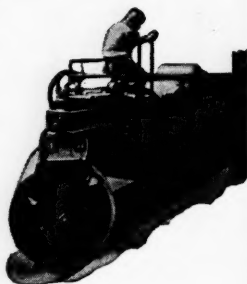
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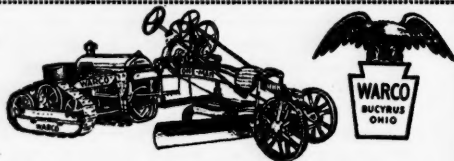


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MANY DIFFERENT TYPES TO MEET EVERY CONDITION.
SAFEST AND MOST PERMANENT CONSTRUCTION.
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ANNUAL HIGHWAY REVIEW NUMBER

Issue January 8, 1931

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for space NOW!*

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In the issue immediately preceding the American Road Building Show and Convention, it has been our custom to publish an Annual Highway Review Number, in which are presented summaries showing activities in each of the Southern states during the preceding year, and official information as to the programs and budgets for the ensuing year.

Feature articles in this issue written by authorities in their respective fields, cover major highway and motor transportation problems. These annual issues are widely read by road machinery and equipment manufacturers, students of highway economics, organizations and officials interested in road building.

Because of the close contact with this work, the advertising pages of the MANUFACTURERS RECORD offer a real opportunity for the use of effective copy. Why not take advantage of this opportunity?

To a greater extent than any other publication, the MANUFACTURERS RECORD carries weekly the official proposal advertisements of highway departments of the sixteen Southern states.

In the Construction Department 15,000 items covering road and bridge projects are published annually.

In planning your space during 1931, start your campaign with a strong piece of copy in the Annual Highway Review Number. Make it the master stroke at the opening of the new year.

We urge that reservations for space, copy, plates and instructions including color specifications be sent as early as possible to insure best attention.

MANUFACTURERS RECORD

Baltimore Maryland

Reserve Your Space NOW

JACKSONVILLE, FLORIDA

has abundant cause to join with the State in this year's

Thanksgiving

Its Municipal Power Plant furnishes current at low rates for making containers for canned grapefruit and for frozen orange juice.

We rejoice that in 22,000,000 crates of golden citrus fruit are stored the mysterious vitamins that give vigor to the old, health to the sick, and vitality to the young.

Serve grapefruit or orange juice for breakfast, grapefruit salad at lunch or dinner. Take an orange as a nightcap. Order the juices at soda fountains. Follow this advice and improve your health.

Come to Jacksonville—it is an ideal place of residence, an unexcelled location for industries, or distribution.

Free climate, cheap power, low freight rates, port and rail facilities.

THE CITY COMMISSION

invites correspondence and offers its aid.

Please mention this magazine.



Only one night from New York—

THE strain of business, particularly in recent months, justifies—almost makes necessary—a change and rest. By fast train you can reach, in an overnight run from New York or the central states, the delightful sand hill country of North Carolina. Here the air is dry and bracing; the day is full of sunlight, nature's great restorer, with an azure sky like the May and June days of a more northerly clime.

Rest or sport invites you—whatever suits your fancy—and the comforts of home, with a truly home-like atmosphere at the

HIGHLAND PINES INN

Your inquiries are invited.
CREAMER & TURNER
Proprietors

Southern Pines, N. C.

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YEAR 'ROUND OPERATION



They operate 12 months in the year in South and Southwest Texas. No letdowns for snow and ice. No troubles with labor. No shortage of raw materials or operating facilities. Here, indeed, every condition is favorable to the manufacturer.

Nature has been kind to South and Southwest Texas with its rich, productive lands and freedom from extremes of heat and cold, but man has been ingenuous. An unlimited supply of electric power at moderate rates; plenty of natural gas, oil, water; an abundance of intelligent labor—all are to be found.

Included in this territory are rapidly growing districts which produce citrus fruits, winter vegetables, rice, cotton, sulphur, oil, natural gas, mohair, cattle, wool, poultry and eggs, and honey. Shrimp and other seafoods are to be found in large quantities. A major deep water port has been completed at Corpus Christi and another is in the making at Brownsville. Northern Mexico, with great trade opportunities, lies "next door."

With such conditions, South and Southwest Texas offer you the most quickly developing consuming districts in the country. For detailed information, write, without obligation to Department of Industrial Development, Frost National Bank Building, San Antonio.



No. 11 of a series depicting natural advantages within the territories served by this Company.

CENTRAL POWER AND LIGHT COMPANY

Now Serving 178 Communities in South and Southwest Texas



On time

"Time is Money". To save time is to save money as well. This is particularly true in the handling of freight. Great natural advantages plus the facilities offered by eight railroads and fifty steamship lines mean that goods shipped via Norfolk arrive and depart ON TIME.

Weather has very little to do with the arrival and departure of ships at the Port of Norfolk. The climate could hardly be more ideal. The harbor is ice-free even in the coldest months. The temperature is remarkable for its freedom from extremes of heat and cold. The mean annual temperature is 59.4 degrees. There are few fogs and no snows of consequence. 59% of daylight hours are sunny.

But Climate is only one of the important reasons why shipping arrives and leaves Norfolk with clock-like regularity. The Port of Norfolk has been equipped with every modern means for the expedition of traffic. Berthing space is available for more than 50 ocean-going craft. There is a depth of more than 30 feet at all the piers at mean low tide for these ships. (The tide range is only 2½ feet.)

Tracks have been laid to shipside at the terminals. There is track space for more than 5,000 freight cars. Eight railroads serve the Port and are inter-connected by the Norfolk-Portsmouth Belt Line. This means speedy and efficient interchange of traffic between all roads and terminals.

There are ample facilities to handle practically any kind of cargo. There are nearly 10 million square feet of under-cover warehouses. Hampton Roads coal piers hold the world's record for speed. More than 1,500,000 tons of coal are handled per month.

The wide expanse of its harbor means that the Port of Norfolk can never suffer Traffic congestion. This plus the climatic and natural advantages of the Port gives manufacturers, shippers, and carriers a traffic gateway at Norfolk that cannot be surpassed.

NORFOLK PORT-TRAFFIC COMMISSION

NORFOLK, VIRGINIA



PORT of NORFOLK

WHERE CLIME AND TIDE WAIT ON MAN

Write for illustrated Booklet and further information on the Port of Norfolk.

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For every purpose on

The East Coast of FLORIDA

From the lands owned by the Model Land Company, of the Flagler System, along the Florida East Coast there is no doubt a location can be selected suitable for your purpose.

Let us know your requirements

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The A. & W. P.—W. Ry. of Alabama and Georgia Railroads traverse a territory rich in material and potential resources. Attractive industrial sites. For information apply:

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Dev. Dept.—Above Lines
Atlanta, Georgia**

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MANUFACTURERS RECORD.

Changes of copy must reach us eight days in advance, or fifteen days in advance if proofs are requested.

MANUFACTURERS RECORD
Baltimore, Maryland

“THE SKIPPER”



LANDLUBBERS as well as seafarers often refer to the commander of a ship or of an organization as “the skipper,” expressing friendly co-operation and good-will. From the bridge of authority, “the skipper” watches the sky, the wind, the stars and the sea, giving his crew the commands that bring the ship safely into port.

As a result of a recent Name Contest, the Norfolk and Western Railway’s fast merchandise freight train, No. 84, from the Midwest to the Virginias and Carolinas, including the Port of Norfolk, Va., will hereafter be known as “The Skipper.” And just as the seafaring “skipper” brings his cargo safely into port, this railroad “skipper” will bring your merchandise to destination, safely, speedily, efficiently and economically.

A word from shippers and receivers of freight to representatives of the Norfolk and Western Railway’s Freight Traffic Department, stationed at strategic points throughout the country, will bring dependable and interested co-operation.




**NORFOLK and WESTERN
RAILWAY**

**ROANOKE
VIRGINIA**

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Hollowell, Gorham & Co., Greensboro, N.C.
Le Baron, E. T., Jacksonville, Fla.

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Lacey & Co., Jas. D., New York, N. Y.

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General Electric Co., Schenectady, N. Y.
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Novo Engine Co., Lansing, Mich.
Quincy Compressor Co., Quincy, Ill.
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Westinghouse Traction Brake Co., Wilmerding, Pa.

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Babcock & Wilcox Co., New York

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Chase, Wm., J. J., Atlanta.
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Moyer Co., Tilghman, Allentown, Pa.
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Allen-Sherman-Hoff Co., Philadelphia, Pa.

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Allen-Sherman-Hoff Co., Philadelphia, Pa.

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—(Emulsified.)

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—Filler.

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Le Baron, E. T., Jacksonville, Fla.

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Baltimore Trust Co., Baltimore, Md.
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—(Line Shaft.)

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Alabama Clay Prod. Co., Birmingham.
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Monaghan Mfg. Corp., Chicago, Ill.
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—(Elevator.)

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—(Orange Peel.)

Hayward Co., The, New York, N. Y.

—(Ore Handling.)

Hayward Co., The, New York, N. Y.

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Stuebner Iron Works, G. L., Long Island City, N. Y.

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International Derrick & Equipment Co., Houston, Texas.
McClintic-Marshall Co., Pittsburgh, Pa.

Nashville Bridge Co., Nashville, Tenn.

Truscon Steel Co., Youngstown, O.

Virginia Bridge & Iron Co., Roanoke, Va.

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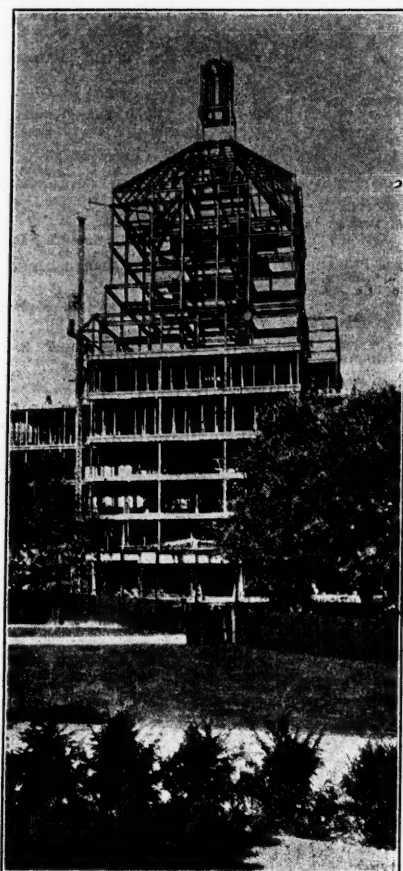
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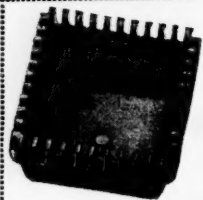
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Gregory Electric Co., Chicago.
Nashville Industrial Corp., Old Hickory, Tenn.
Nussbaum & Co., V. M., Ft. Wayne, Ind.
O'Brien Machinery Co., The, Phila., Pa.
Randle Machinery Co., The, Cincinnati, O.
Rockford Power Machy. Co., Rockford, Ill.

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Millner Co., St. Louis, Mo.

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—(Hydraulic.)
American Elevator & Machine Co., Inc.,
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Battley & Kipp, Inc., Chicago, Ill.

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Ford, Bacon & Davis, Inc., New York.
Lockwood Greene Engrs., Inc., New York.
Main, Inc., Chas. T., Boston, Mass.
Sanderson & Porter, New York, N. Y.
Wadleigh & Bailey, Washington, D. C.
White Engineering Corp., J. G., New York.

Whitman, Requaardt & Smith, Balto., Md.
Wiedeman and Singleton, Inc., Atlanta.
Williamson, Lee H., Charlottesville, Va.

—(Aviation.)

Shaw Co., Russell B., St. Louis, Mo.

—(Bridge.)

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Billingsley, James W., New Orleans, La.
Fay, Spofford & Thorndike, Boston, Mass.
Freeland, Roberts & Co., Nashville, Tenn.
Gardner & Howe, Memphis, Tenn.
Greiner & Co., J. E., Baltimore, Md.
Hardaway Contracting Co., Columbus, Ga.
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.
Howerton Engineering Co., Asheville, N. C.
Steel & Leiby, Knoxville, Tenn.
Turner, C. A. P., Minneapolis, Minn.
Virginia Bridge & Iron Co., Roanoke, Va.
Wheeler, Walter H., Minneapolis, Minn.
Whitman, Requaardt & Smith, Balto., Md.

—(Chemical.)

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Dow & Smith, New York, N. Y.
Flood & Co., Walter H., Chicago, Ill.
Pleard Laboratories, Birmingham, Ala.
Pittsburgh Testing Laboratories, Pittsburgh, Pa.
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—(Civil.)

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Harrub Engr. Co., C. N., Nashville, Tenn.
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Hills Co., George B., Jacksonville, Fla.
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Charlton & Davis, Ft. Lauderdale, Fla.
Converse & Co., J. B., Mobile, Ala.
Cramer, Robert, Milwaukee, Wis.
Engineering Service Corp., Houston, Tex.
Harza Engineering Co., Chicago.
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.
Herty, Charles H., New York City.
Lockwood Greene Engrs., Inc., New York.
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Tucker & Laxton, Charlotte, N. C.
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Main, Inc., Chas. T., Boston, Mass.
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Battey & Kipp, Inc., Chicago, Ill.
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Sanderson & Porter, New York, N. Y.
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White Engineering Corp., J. G., New York.
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Widmer Engineering Co., St. Louis, Mo.
Williamson, Lee H., Charlottesville, Va.

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Steel & Leiby, Knoxville, Tenn.
Tucker & Laxton, Charlotte, N. C.
Turner, C. A. P., Minneapolis, Minn.
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Harrub Engr. Co., C. N., Nashville, Tenn.
Hills Co., George B., Jacksonville, Fla.
Howerton Engineering Co., Asheville, N.C.
Knowles, Inc., Morris, Pittsburgh, Pa.
Mees & Mees, Charlotte, N. C.
Sanderson & Porter, New York, N. Y.
Spoon & Lewis, Greensboro, N. C.
Tucker & Laxton, Charlotte, N. C.
White Co., Gilbert C., Durham, N. C.
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Whitman, Requaardt & Smith, Balto., Md.
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North American Refractories Co., Cleveland, Ohio.

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Combustion Engr. Corp., New York City.

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Chicago Bridge & Iron Works, Atlanta, Ga.**—Producers.**Gas-O-Flame Stove Works, Port Deposit, Md.
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Dixie Culvert Mfg. Co., Little Rock, Ark.

Louisiana Corr. Culvert Co., Baton Rouge, La.

Tenn. Metal Culvert Co., Nashville, Tenn.

Western Metal Mfg. Co., Houston, Texas.

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Woods' Sons Co., T. B., Chambersburg, Pa.

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Howell Electric Motors Co., Howell, Mich.

Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.

—(Used.)

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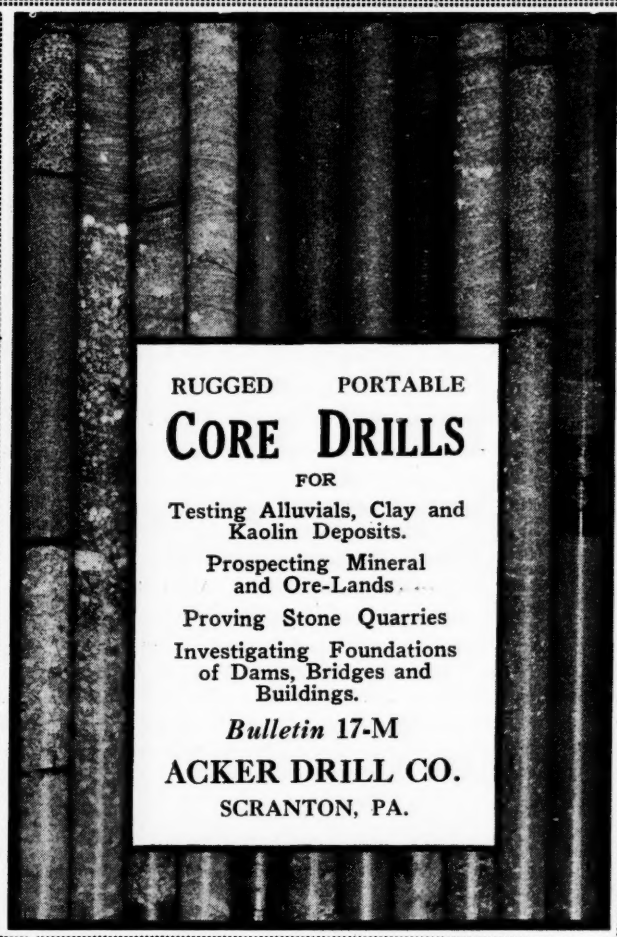
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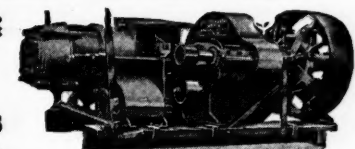
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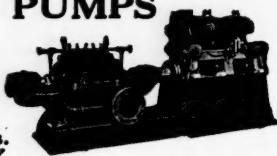
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Zelnicke Supply Co., W. A., St. Louis.
(Yellow Pine.)
Jackson Lumber Co., Lockhart, Ala.

PILLOW BLOCKS.

Goldens' Fdry. & Mch. Co., Columbus, Ga.

PIPE.

Albert & Davidson Pipe Corp., Brooklyn, N. Y.
Albert Pipe Sup. Co., Inc., Brooklyn, N. Y.
Armo Culvert Mfrs. Assn., Middletown, O.
Birmingham Boiler & Engr. Co., Birmingham, Ala.
Central Pipe & Supply Co., Charleston, W. Va.
Greenpoint Iron & Pipe Co., Inc., Brooklyn, N. Y.
Hudson Pipe & Supply Co., Bayonne, N. J.
Maryland Pipe & Steel Corp., Baltimore, Md.
National Tube Co., Pittsburgh, Pa.
Pittsburgh Piping & Equip. Co., Pittsburgh, Pa.
Power Piping Co., Pittsburgh, Pa.

(Cast Iron.)

Amer. Cast Iron Pipe Co., Birmingham.
Cast Iron Pipe Research Assn., Chicago.
Central Foundry Co., The, New York, N. Y.
Glamorgan Pipe & Fdry. Co., Lynchburg, Va.
U. S. Pipe & Foundry Co., Burlington, N. J.

(Dredge.)

Abendroth & Root Mfg. Co., New York.

(Hammer-Welded.)

National Tube Co., Pittsburgh, Pa.

(Iron and Steel.)

Ryerson & Son, Inc., Jos. T., St. Louis and New York.

(Riveted.)

Abendroth & Root Mfg. Co., New York.

(Second-Hand.)

Albert & Davidson Pipe Corp., Brooklyn, N. Y.
Albert Pipe Sup. Co., Inc., Brooklyn, N. Y.
Central Pipe & Sup. Co., Charleston, W. Va.
Greenpoint Iron & Pipe Co., Inc., Brooklyn, N. Y.
Hudson Pipe & Supply Co., Bayonne, N. J.
Marine Metal & Supply Co., New York.
Maryland Pipe & Steel Corp., Baltimore, Md.

(Spiral Riveted.)

Abendroth & Root Mfg. Co., New York.
Taylor Forge & Pipe Wks., Chicago, Ill.

(Steel.)

Bethlehem Steel Co., Bethlehem, Pa.
National Tube Co., Pittsburgh, Pa.
Pittsburgh Piping & Equip. Co., Pittsburgh, Pa.
Power Piping Co., Pittsburgh, Pa.
Republic Steel Corp., Youngstown, Ohio.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

(Welded.)

Welded Products Co. of La., Inc., New Orleans, La.

(Wrought Iron.)

Reading Iron Co., Reading, Pa.

Benders and Headers.

Grinnell Co., Inc., Providence, R. I.

Bending Machines.

American Pipe Bending Machine Co., Boston, Mass.

Coatings.

Foster Co., Benjamin, Philadelphia, Pa.

Fittings.

Amer. Cast Iron Pipe Co., Birmingham.
Georgia Iron Works, Augusta, Ga.
Grinnell Co., Inc., Providence, R. I.

Lines (Water, Gas & Oil—Riveted or Welded.)

Biggs Boiler Works Co., Akron, Ohio.

Unions and Joints.

Dart Mfg. Co., E. M., Providence, R. I.

Systems (Industrial.)

Grinnell Co., Inc., Providence, R. I.
Pittsburgh Piping & Equip. Co., Pittsburgh, Pa.
Power Piping Co., Pittsburgh, Pa.

PLATES (Steel.)

Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Central Iron & Steel Co., Harrisburg, Pa.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Granite City Steel Co., Granite City, Ill.
Gulf States Steel Co., Birmingham, Ala.
Ryerson & Son, Inc., Jos. T., St. Louis and New York.
Tennessee Coal, Iron & Railroad Co., Birmingham.

PNEUMATIC TOOLS.

Ingersoll-Rand Co., New York, N. Y.

POLES (Creosoted.)

Amer. Creosote Wks., Inc., New Orleans.
Amer. Creosoting Co., Inc., Louisville, Ky.
Ayer & Lord Tie Co., Inc., Chicago.
Brown Wood Preserving Co., Louisville, Ky.
Carolina Wood Preserving Co., Charleston, S. C.
Savannah Creosoting Co., Savannah.
Taylor-Colquitt Co., Spartanburg, S. C.

(Tubular, Steel.)

National Tube Co., Pittsburgh, Pa.

(Yellow Pine.)

Jackson Lumber Co., Lockhart, Ala.

(Zinc Meta Arsenite Treated.)
Curtin-Howe Corp., New York City.

POLISHING MACHINERY.

(Wheels, Blocks.)
Carborundum Co., Niagara Falls, N. Y.

PORTABLE HOUSES (Metal.)

Braden Steel Corp., Tulsa, Okla.

POST CABS.

Duplex Hanger Co., Cleveland, Ohio.

POSTS, (Cast Iron, Railway and Highway.)

U. S. Pipe & Foundry Co., Burlington, N. J.

POWER TRANSMISSION MACHINERY.

American Pulley Co., Philadelphia, Pa.
Diamond Chain & Mfg. Co., Indianapolis.
Goldens' Fdy. & Mch. Co., Columbus, Ga.
O'Brien Machinery Co., Phila., Pa.
Schofield's Sons Co., J. S., Macon, Ga.
Wood's Sons Co., T. B., Chambersburg, Pa.
(Pumps.)
Luitwiler Pumping Engine Co., Rochester, N. Y.

PREHEATERS (Air.)

Combustion Engr. Corp., New York City.

PRESSES, (Baling, Cottonseed Oil, Hydraulic and Power.)

Dunning & Boschert Press Co., Inc., Syracuse, N. Y.
Ripley Foundry & Machine Co., Ripley, O.
Tomlin-Harris Machine Co., Cordelle, Ga.
(Metal Stamping.)
Bliss Co., E. W., Brooklyn, N. Y.

PRINTERS (Book, Catalog, Job.)

Smith & Son Co., Oscar T., Baltimore, Md.
Young & Selden Co., Baltimore, Md.

PRODUCER (Gas Machines.)
Gas-O-Flame Store Wks., Port Deposit, Md.
Morgan Construction Co., Worcester, Mass.
Wood & Co., R. D., Phila., Pa.

PULLEYS (Friction Clutch.)
Caldwell Co., Inc., W. E., Louisville, Ky.
Wood's Sons Co., T. B., Chambersburg, Pa.

—(Motor and Machine.)
American Pulley Co., Philadelphia, Pa.

—(Steel Split.)
American Pulley Co., Philadelphia, Pa.

—Shafting and Hangers.
American Pulley Co., Philadelphia, Pa.
Goldens' Fdy. & Mch. Co., Columbus, Ga.
Wood's Sons Co., T. B., Chambersburg, Pa.

PULVERIZED COAL EQUIPMENT.
Combustion Engr. Corp., New York, N. Y.
Fuller Lehigh Co., Fullerton, Pa.
Whiting Corp., Harvey, Ill.

PULVERIZERS (See Crushing and Pulverizing Machinery.)

PUMPING MACHINERY.
Cameron, A. S., Steam Pump Works (Ingersoll-Rand Co.), New York City.
Chain Belt Co., Milwaukee, Wis.
Cook, Inc., A. D., Lawrenceburg, Ind.
Fairbanks, Morse & Co., Chicago, Ill.
Ingersoll-Rand Co. (A. S. Cameron Steam Pump Works), New York, N. Y.
Luitwiler Pumping Engine Co., Rochester, N. Y.
Myers & Bro. Co., The F. E., Ashland, O.
National Equipment Corp., (C. H. & E. Division), Milwaukee, Wis.
Platt Iron Works, Dayton, Ohio.
Viking Pump Co., Cedar Falls, Iowa.
Virginia Mch. & Well Co., Richmond, Va.

PUMPS (Air.)
Manistee Iron Works Co., Manistee, Mich.

—(Air Lift.)
Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

—(Boiler Feed.)
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DeLaval Steam Turbine Co., Trenton, N. J.
Erie Pump & Engine Wks., Medina, N. Y.
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Manistee Iron Works Co., Manistee, Mich.
Myers & Bro. Co., The F. E., Ashland, O.

—(Centrifugal.)
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
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Jaeger Machine Co., Columbus, Ohio.
Layne & Bowler, Inc., Memphis, Tenn.
Manistee Iron Works Co., Manistee, Mich.
Morris Machine Wks., Baldwinville, N. Y.
Novo Engine Co., Lansing, Mich.

—(Contractors.)
Erie Pump & Engine Wks., Medina, N. Y.
Novo Engine Co., Lansing, Mich.

—(Deep Well.)
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Layne & Bowler, Inc., Memphis, Tenn.
Luitwiler Pumping Engine Co., Rochester, N. Y.
Novo Engine Co., Lansing, Mich.

—(Diaphragm.)
Novo Engine Co., Lansing, Mich.

—(Hydraulic.)
Duhning & Boschert Press Co., Inc., Syracuse, N. Y.

—(Power.)
Platt Iron Works, Dayton, Ohio.
Sterling Engine Co., Buffalo, N. Y.

—(Pulverized Coal.)
Fuller Lehigh Co., Fullerton, Pa.

—(Rotary.)
Viking Pump Co., Cedar Falls, Iowa.

—(Sand and Dredging.)
Ellicott Machine Corp., Baltimore, Md.
Erie Pump & Engine Wks., Medina, N. Y.
Georgia Iron Works, Augusta, Ga.

—(Steam.)
Cameron, A. S., Steam Pump Works (Ingersoll-Rand Co.), New York City.
Fairbanks, Morse & Co., Chicago, Ill.
Ingersoll-Rand Co. (A. S. Cameron Steam Pump Works), New York, N. Y.
Platt Iron Works, Dayton, Ohio.

—(Vacuum.)
Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

—(Water Works.)
Layne & Bowler, Inc., Memphis, Tenn.
Manistee Iron Works Co., Manistee, Mich.

PUNCHING AND SHEARING MACHINERY.
Bliss Co., E. W., Brooklyn, N. Y.
Whitney Metal Tool Co., Rockford, Ill.

RACK RAKES.
Newport News Shipbuilding & Drydock Co., Newport News, Va.

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Manhattan Perforated Metal Co., Inc., Long Island City, N. Y.

RADIATORS (Gas Steam.)
Williams Radiator Co., Los Angeles, Calif.

RAILINGS (Iron Pipe.)
Pipe Railing Constr. Co., Long Island City, N. Y.

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Ludlow Saylor Wire Co., St. Louis, Mo.

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Whiting Corp., Harvey, Ill.

—Equipment and Supplies (Used.)
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Levis & Co., Henry, Philadelphia, Pa.
Smith & Co., W. M., Birmingham, Ala.
Southern Iron and Equip. Co., Atlanta.
Zelicker Supply Co., W. A., St. Louis.

—(Frogs and Switches.)
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Koppel Ind. Car & Equip. Co., Koppel, Pa.
Robinson & Orr, Pittsburgh, Pa.

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Model Land Company, Flagler System, St. Augustine, Fla.
Norfolk & Western Railway, Roanoke, Va.
Tennessee Central Railway, Nashville.

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Levis & Co., Henry, Philadelphia, Pa.
Perry, Buxton, Doane Co., Philadelphia.
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Smith & Co., W. M., Birmingham, Ala.
Southern Iron & Equip. Co., Atlanta, Ga.
Sweet's Steel Co., Williamsport, Pa.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
Zelicker Supply Co., W. A., St. Louis.

RAILWAYS (Industrial.)
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Koppel Ind. Car & Equip. Co., Koppel, Pa.

—(Marine.)
Charleston Dry Dock and Machine Co., Charleston, S. C.

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Dietrich Brothers, Baltimore, Md.
Gulf States Steel Co., Birmingham, Ala.
Knoxville Iron Co., Knoxville, Tenn.
Ryerson & Son, Inc., Jos. T., St. Louis and New York.
Southern Engineering Co., Charlotte, N. C.
Trucon Steel Co., Youngstown, Ohio.

RETORTS (Special Process — Riveted or Welded.)
Biggs Boiler Works, Akron, Ohio.

RIVER & HARBOR IMPROVEMENTS, (Dredging, Docks, Wharves, etc.)
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Atlantic Gulf and Pacific Co., New York.
Kansas City Bridge Co., Kansas City.

RIVETS.
Russell, Burdall & Ward Bolt & Nut Co., Port Chester, N. Y.

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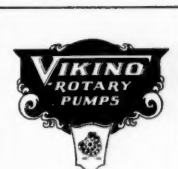
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Buffalo-Springfield Roller Co., Springfield, O.

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American Sheet and Tin Plate Co., Pittsburgh, Pa.

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Gulf State Steel Co., Birmingham, Ala.

Milcor Steel Co., Milwaukee, Wis.
Moeschl-Edwards Corr. Co., Cincinnati, O.

Republic Steel Corp., Youngstown, Ohio.
Ryerson & Son, Inc., Jos. T., St. Louis and New York.

Truscon Steel Co., Youngstown, Ohio.
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—Tiles.
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—Drives.
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Luffkin Rule Co., Saginaw, Mich.

—SAND.
Arundel Corp., Baltimore, Md.
Friend & Co., Inc., Petersburg, Va.

—Sanitary Drinking Fountains.
Rundle-Spence Mfg. Co., Milwaukee, Wis.

—SASH (Industrial.)
Truscon Steel Co., Youngstown, Ohio.

—SAWMILL Machinery.
Schofield's Sons Co., J. S., Macon, Ga.

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National Equipment Corp., (C. H. & E. Division), Milwaukee, Wis.

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Earle Gear and Machine Co., Phila., Pa.

—SCAFFOLDING (Wooden.)
Patent Scaffolding Co., Chicago, Ill.

—SCHOOLS (Correspondence.)
International Correspondence Schools, Scranton, Pa.

—SCOOPS (Wheeled.)
Riddell Co., W. H., Bucyrus, Ohio.

—SCRAPERS (Drag and Wheel.)
Sauerman Bros., Chicago, Ill.

—SCRAP IRON AND STEEL.
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Smith & Co., W. M., Birmingham, Ala.

—SCREEN CLOTH.
Seneca Wire & Mfg. Co., Fostoria, Ohio.

—SCREENING (For Concrete and Road Construction.)
American Limestone Co., Knoxville, Tenn.

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Erdie Perforating Co., Rochester, N. Y.

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Ludlow Saylor Wire Co., St. Louis, Mo.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Mundt & Sons, Charles, Jersey City, N. J.
Universal Crusher Co., Cedar Rapids, Ia.

—(Sifting.)
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Pacific Flush-Tank Co., New York, N. Y.

—SEWER Joint Compounds.
Pacific Flush-Tank Co., New York, N. Y.

—Pipe (Vitrified.)
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Hammond Iron Works, Warren, Pa.
Hedges Walsh Weldner Co., Chatta-
nooga, Tenn.
Ingalls Iron Works Co., Birmingham, Ala.
Lombard Iron Works & Supply Co., Au-
gusta, Ga.
Pittsburgh-Des Moines Steel Co., Pitts-
burgh, Pa.
Schofield's Sons Co., J. S., Macon, Ga.
U. S. Pipe & Foundry Co., Burlington, N.J.
Virginia Bridge & Iron Co., Roanoke, Va.

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—Treads.
Central Iron & Steel Co., Harrisburg, Pa.

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Hammond Iron Works, Warren, Pa.
Pittsburgh-Des Moines Steel Co., Pitts-
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Young & Selden Co., Baltimore, Md.

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Thev Shovel Co., The, Lorain, Ohio.

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Mueller Co., Decatur, Ill.

—Traps.
Jenkins Bros., New York, N. Y.

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Dietrich Brothers, Baltimore, Md.
Gulf States Steel Co., Birmingham, Ala.
Republic Steel Corp., Youngstown, Ohio.
Ryerson & Son, Inc., Jos. T., St. Louis
and New York.
Tennessee Coal, Iron & Railroad Co., Bir-
mingham, Ala.
Virginia Bridge & Iron Co., Roanoke, Va.

—(Alloy.)
Timken Roller Bearing Co., Canton, Ohio.

—(Cold Drawn.)
Bliss & Laughlin, Inc., Harvey, Ill.

—(Cold Rolled.)
American Steel & Wire Co., Balto., Md.
Bliss & Laughlin, Inc., Harvey, Ill.

—(Information Only.)
American Institute of Steel Construction
Inc., New York City.

—(Special Analysis.)
Timken Roller Bearing Co., Canton, Ohio.

—(Tool, High Speed.)
Bethlehem Steel Co., Bethlehem, Pa.

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Builders.)

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Belmont Iron Works, Philadelphia, Pa.
Braden Steel Corp., Tulsa, Okla.
Butler Mfg. Co., Kansas City, Mo.
Carolina Steel & Iron Co., Greensboro, N. C.
Champion Bridge Co., Wilmington, O.
Eichleay, Jr., Co., John, Pittsburgh, Pa.
Erie Steel Construction Co., Erie, Pa.
Ingalls Iron Works Co., Birmingham, Ala.
McClintic-Marshall Co., Pittsburgh, Pa.
Phoenix Iron Co., The, Phila., Pa.
Pittsburgh-Des Moines Steel Co., Pitts-
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Virginia Bridge & Iron Co., Roanoke, Va.

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Blaw-Knox Co., Pittsburgh, Pa.

—Plate Construction (Riveted
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Birmingham Boiler & Engr. Co., Bir-
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Chattanooga Boiler & Tank Co., Chatta-
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Chicago Bridge & Iron Works, Atlanta, Ga.
Combustion Engr. Corp., New York City.
Hammond Iron Works, Warren, Pa.
Hedges Walsh Weldner Co., Chatta-
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Ingalls Iron Works Co., Birmingham, Ala.
Phoenix Iron Co., The, Phila., Pa.
Pittsburgh-Des Moines Steel Co., Pitts-
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Traylor Engr. & Mfg. Co., Allentown, Pa.

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Combustion Engr. Corp., New York City.
Whiting Corp., Harvey, Ill.

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Chattanooga Boiler & Tank Co., Chatta-
nooga, Tenn.
Converse Bridge & Steel Co., Chatta-
nooga, Tenn.
Dietrich Brothers, Baltimore, Md.
Eichleay, Jr., Co., John, Pittsburgh.
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McClintic-Marshall Co., Pittsburgh, Pa.
Nashville Bridge Co., Nashville, Tenn.
Phoenix Iron Co., The, Phila., Pa.
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Republic Steel Corp., Youngstown, Ohio.
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Roanoke, Va.
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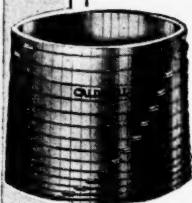
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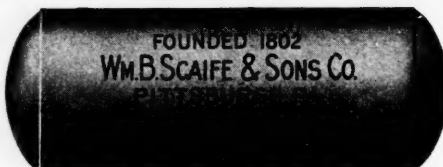
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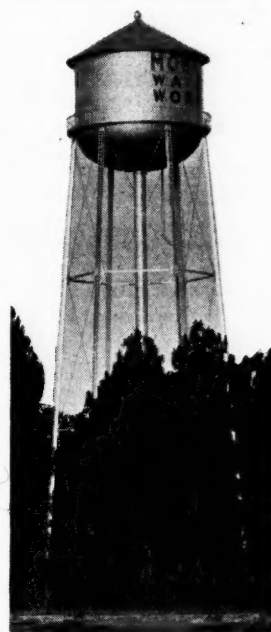
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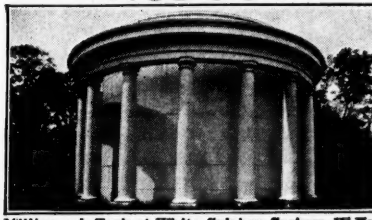
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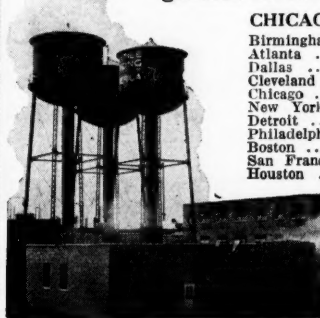
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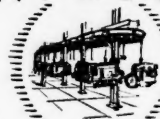
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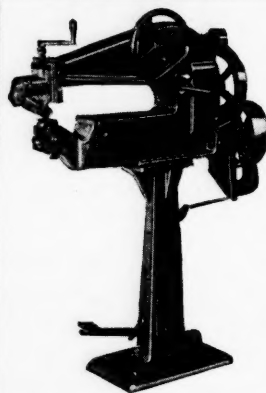
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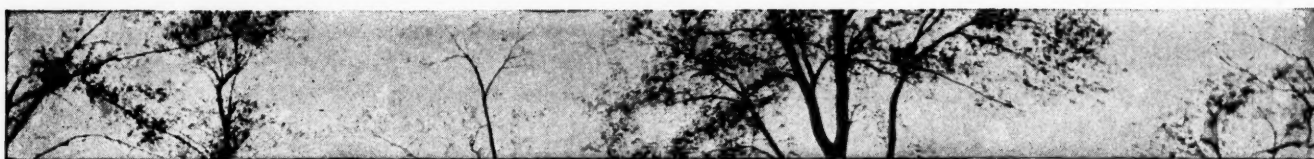
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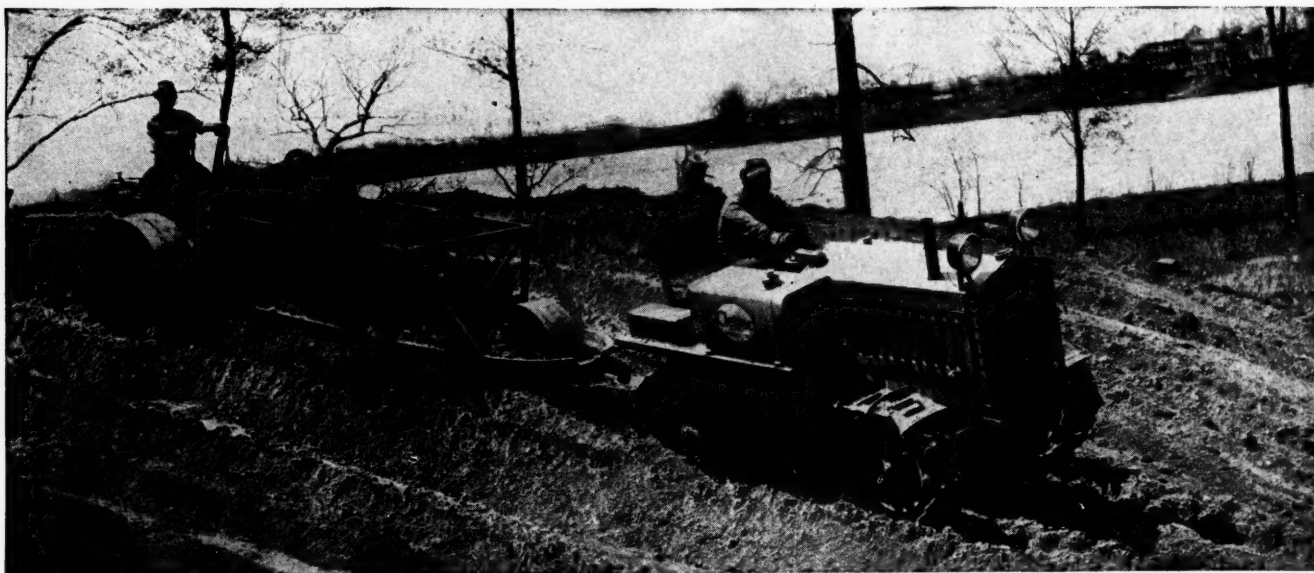
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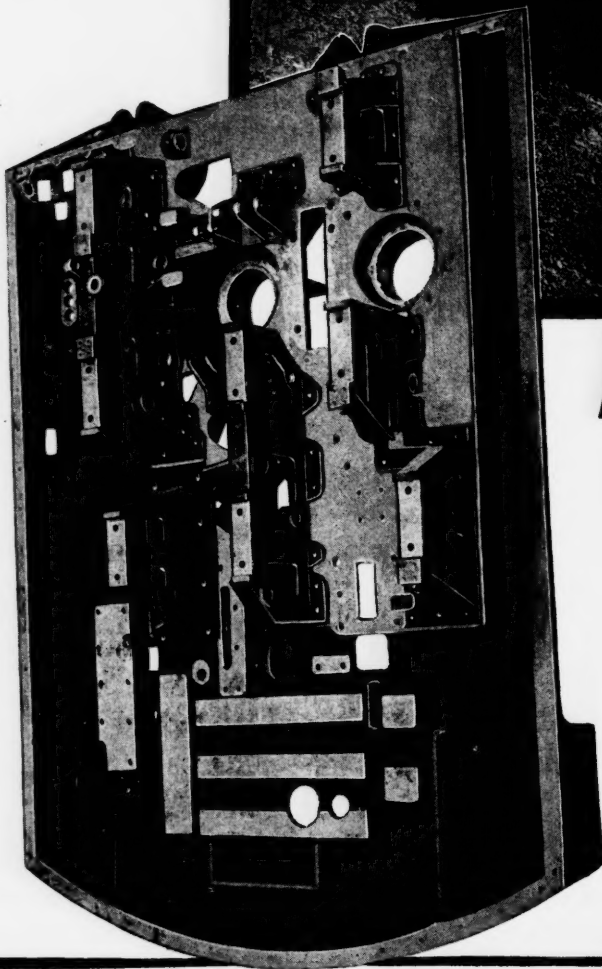
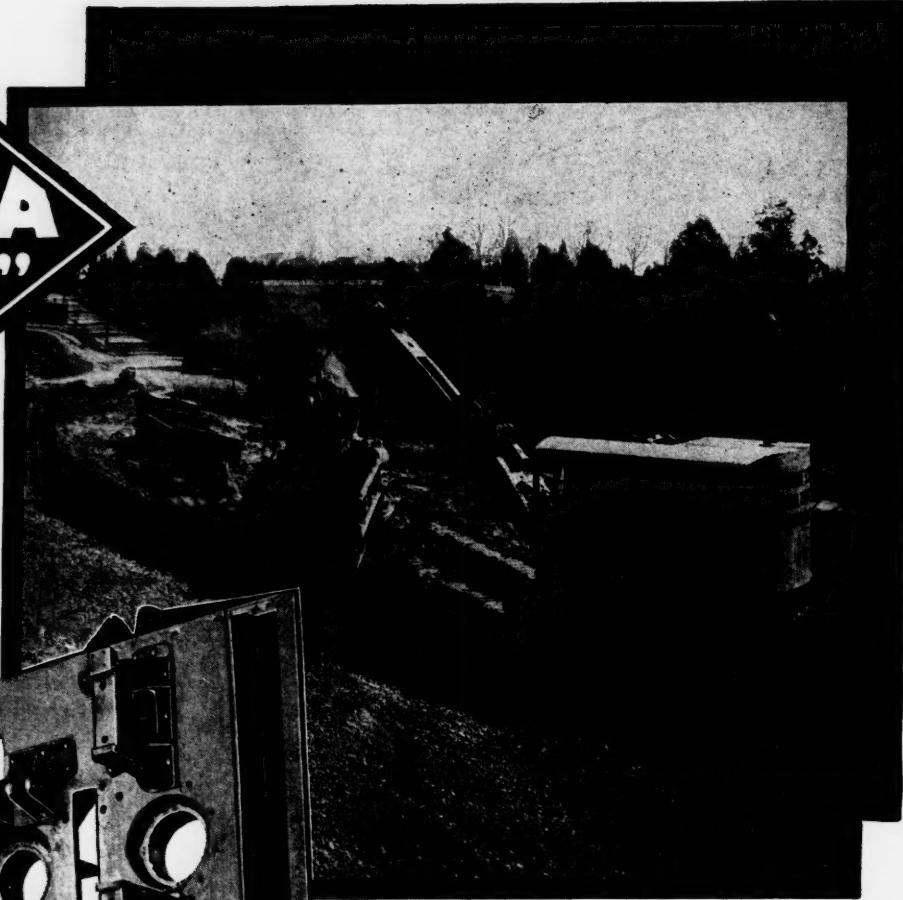


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